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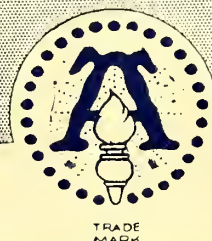
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DECEMBER 31, 1927.

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Vol. CVII.

"Torch" Brand

Balsamic SKIN CREAM



This cream embodies a new idea in applications for the skin. It quickly removes roughness and small abrasions, leaving a delightful feeling of smoothness and comfort. An all the year round preparation, counteracting the effects of summer sun, winter cold, winds and sea water. *For use after shaving it is invaluable.* The pharmacist can sell this in spring, summer, autumn and winter.

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A liberal profit margin for yourself

Our name on the bottle is a guarantee of quality.

On the P.A.T.A.

3 oz. bottles retailing at 1/3
Wholesale Price 9/6 doz.

*"Torch" Brand Products are
sold to Chemists only.*

Allen & Hanburys Ltd.
BETHNAL GREEN, LONDON, E.2.





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WHITAKER PRODUCTS

ALL WHITAKER PRODUCTS are so simple to use and, above all, so reliable that they instantly become first favourites with every woman who once uses them.

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There is always a good steady demand for these

attractive and quick selling lines, and the business is entirely in the hands of the Chemist who will take advantage of our Press Advertising — Showcards and Literature which we gladly send free.

If you are not yet a 'Whitaker Chemist' send us a trial order for 'Luton' and 'Auroral' Dyes. There is an important New Year's demand for 'Auroral' Cold Water Dyes and the many and varied uses for LUTON STRAW HAT DYES — make them equally an all-the-year-round product.

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On Request with orders for 1 gross Assorted 'Auroral' Cold Water Dyes—the Trade Price for which is £2 8 0 and less 5% Discount if prompt cash payment is made. The Retail value of these Dyes is £3 12 0, so that the transaction shows more than 33½% net profit, or more than 50% on the turnover. Only one Cabinet (which is of a lasting and permanent nature) can be supplied to each customer. The dimensions of the Cabinet are—height of front 15½ ins., width of front 11½ ins., breadth at top 5½ ins., breadth at bottom 10 ins. Send us your order To-night, and the Cabinet with your stock of 'Auroral' Dyes will be sent immediately.

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AUORAL

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Good trade should be done in this line now by recommending it for this purpose to your customers. Recognised as the finest cold water dyes in the world for delicate and costly fabrics. Good results obtained even at the first trial. A certain seller.

'LUTON'

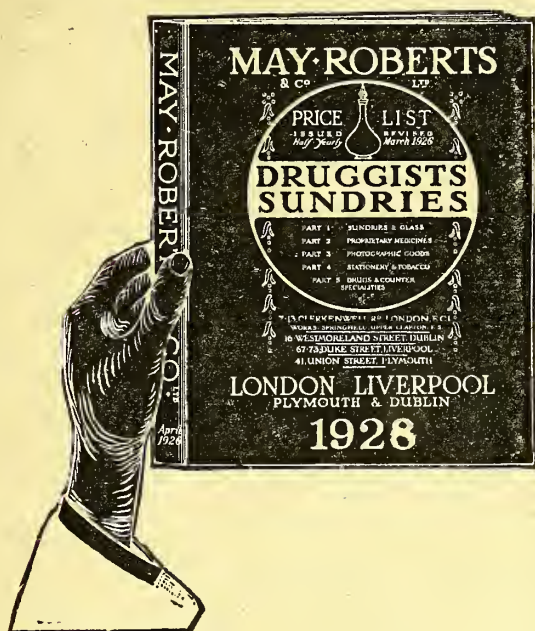
HOT-WATER FABRIC DYES

The best hot-water dyes for all materials, giving perfect results with the minimum of trouble. As with all other Whitaker products, they show a good profit.

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The New Cleaner.

A cleansing preparation for removing stains, grease, dirt, etc. from clothing, upholstery, curtains, etc., and renovating them. VELT is a non-inflammable liquid and is supplied in screw tins, of which three dozens are contained in an attractive outer. A new Whitaker product, but nevertheless one which is already selling well. It is now available in 5-oz., 10-oz. and 20-oz. tins for the convenience of bigger users.



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The reliance placed by the Trade in May, Roberts' List is the result of half a century's experience.

Success in selling by Catalogue demands confidence on the part of the customer, but the reputation of the May, Roberts' Service for cheapness, promptitude and accuracy is so widespread nowadays that this preliminary act of faith is unnecessary.

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To prevent delay will those who have not open accounts with us please accompany their orders with cheque in payment, deducting the Cash Discount.

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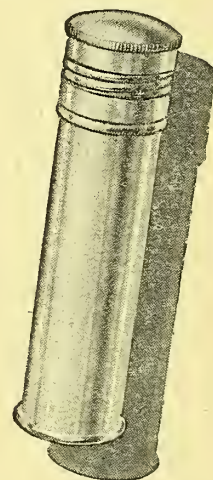
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LOUGHBOROUGH,

LEICESTERSHIRE.

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A counter display will help.

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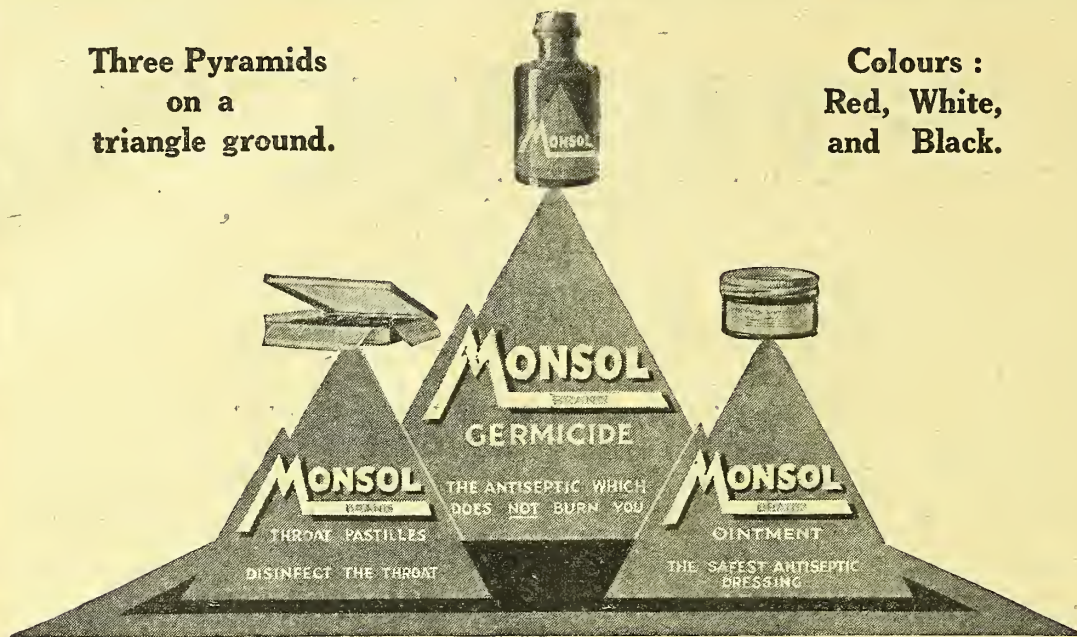


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to clean
teeth

Three Pyramids
on a
triangle ground.

Colours :
Red, White,
and Black.



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1. This arresting Display Set.
2. Extra Profits offer.
3. Strong Advertising Support.

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If you will display this window set for a fortnight we offer you a small consignment of goods at a special price which shows a profit of over 40%. The parcel contains Monsol Pastilles, 1½ doz.; Monsol (liquid) Germicide, 1 doz.; Monsol Ointment, ½ doz. The special price is 37/6, and the goods sell for 63/-. Your Profit is 25/6.

The "Big Push" of the Monsol Advertising Campaign is timed for January 12th. It includes full front pages in the *Daily Mail*, *Daily News*, and *Daily Chronicle*. Show MONSOL in your window and get your share of the business that will follow.

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**GET YOUR WINDOW DISPLAY PARCEL NOW.
THIS OFFER CLOSSES JANUARY 16TH.**

Maw's



Page

To increase and to hold your business in Clinical Thermometers

Hygienic education has taught a large section of the public to regard a clinical thermometer as a household necessity. A large business in clinicals has thus been created.

The business is further increased by the fact that a clinical thermometer is necessarily fragile and replacements are frequent.

Business in clinical thermometers should, obviously, belong exclusively to the pharmacist.

By giving the pharmacist a range of reliable British-made thermometers and the means of effective display and ready sale, Maw's are helping him to increase and to hold his clinical thermometer business.

Maw's Clinical Thermometer Display Case keeps clinicals constantly before your customers. You have only to give it a place on your counter and sales and profits will follow automatically.

Maw's Clinical Display Case is supplied free with initial orders for 3 dozen clinicals selected from this list.

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			Each.	Dozen.	Each.	Dozen.
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1/4919	" 60 sec. Plain	..	1/3	12/6	1/6	14/9
1/4920	" " Magnifying	..	1/5	14/6	1/8	16/9
1/4921	" 30 sec. Plain	..	1/4	13/9	1/7	16/-
1/4922	" " Magnifying	..	1/6	15/-	1/9	17/3
The above, printed in Black and Red above normal		..	..	..	..	per dozen 9d.
N.P.L. Tested, engraved on each		extra, each	4d.,	per dozen 3/2
N.P.L. Tested, with certificate		extra, each	9d.

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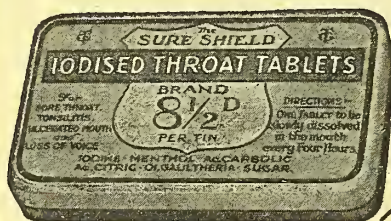
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**QUICKLY EARNS
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UPRIGHT CENTRE CASES, WALL CASES,
GLASS COUNTERS, MIRRORS
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Shop Fronts, Show Cases, Exhibition Cases, Counter
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ALL GOODS OF BEST QUALITY
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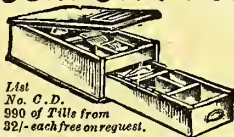
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The 'ARGYLE' TILL.

Highly polished solid Mahogany, dovetailed edges. Check action to drawer. Alarm Bell. Lock and key to lid. Size 18 x 9 x 7 1/2 ins.

Paper Cords, 31 ins. wide, 4/6 doz. **84/-**
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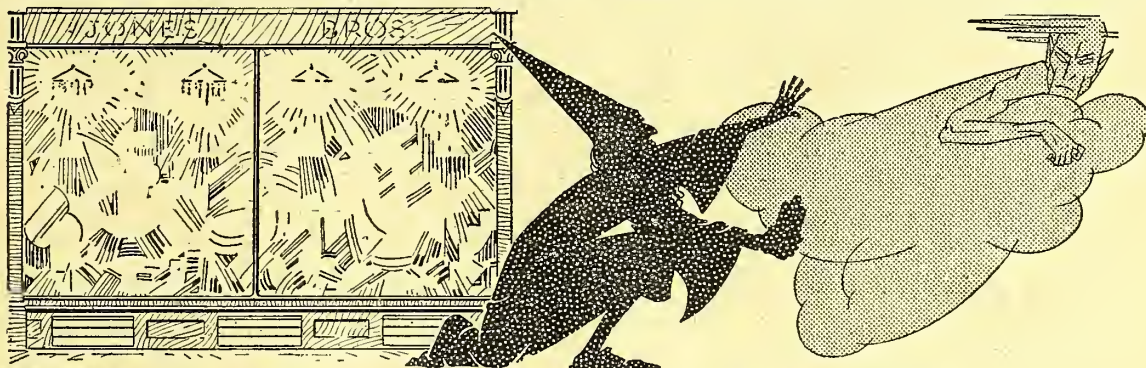


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Suitable for all Businesses.

D. MATTHEWS & SON,
 Shop Fitters and Showcases
 Manufacturers,
 14/16 Manchester St.,
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Plate glass sloping front. Frameless Mirror sliding doors at back. Polished edge plate glass shelf inside. Size 3 feet long, 14 in. back to front at bottom. 9 in. back to front at top. 12 in. high.....**£5-10-0**



Rid your windows of steam

—keep them clear with Steamo so that your goods can be plainly seen at all times. No matter how damp and steamy the indoor atmosphere, steam cannot cling to windows on which Steamo has been applied. First clean the windows, then rub Steamo over the whole of the inside surface and leave it on. Be sparing with it, but be careful to cover the whole of the surface.

Send to Reckitt & Sons, Ltd., for a free sample tin and apply this simple test:

Rub a little Steamo on a portion of a window, then breathe on the glass. Where Steamo has been applied, the glass will remain perfectly clear.

Steamo is sold by Grocers and Stores in 1/- and 2/- tins

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PREVENTS STEAMY WINDOWS

RECKITT AND SONS, LTD., HULL AND LONDON

Petroleum Jelly

White, Yellow, Amber,
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Pharmaceutical and
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CREAM EMULSION of COD LIVER OIL.

"DISPELLO" CATARRH SNUFF.

GINGER WINE ESSENCE—makes 10 gallons of non-alcoholic wine.

Window Offers.

A realistic plaster cast model, true-to-life colouring, 22 inches high. Free with 6 dozen, or a topical Loud Speaker Wireless Window Display, Complete with "Aerial" and "lead in."

Ayrton's famous "Fisherman with Cod" model, 26 inches high, oil painted in natural colours, or Lighthouse Model with Simulation Rays—can be used with flashing lamp. Either model free with 1 gross.

Complete Window Display. "The Question Is?" consisting of centrepiece and surrounds with streamers.

New cut-out showcards printed in 3 colours.

Prices*

per doz. 12/-, per gross 144/-.
Bonus of 6 bottles with each 6 dozen ordered and *pro rata* upwards.

Size oz.	25%	33½%	Fleet Carton
4	7/3	7/6	9/-
6	9/3	9/6	11/-
8	11/-	11/6	13/3
12	14/-	14/9	17/-
16	16/-	17/6	20/-
24	22/3	24/-	..

Name and address on 3 dozen or more.

per dozen 4/6
6 dozen @ 4/3
12 dozen @ 4/-
In cut-out Display outers.

per dozen 6/6
6 dozen @ 6/3
12 dozen @ 6/-
Own name on 3 dozen or more.

* Special Quotations for Irish Free State and Overseas Markets.

AYRTON, SAUNDERS & Co. LTD.
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GOLD MEDAL

BIDWELLS' PROPHYLACTIC TOOTH BRUSH

Estab. 1839

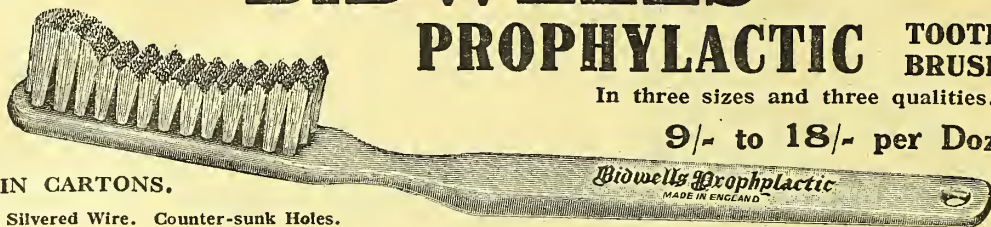
In three sizes and three qualities.

9/- to 18/- per Doz.

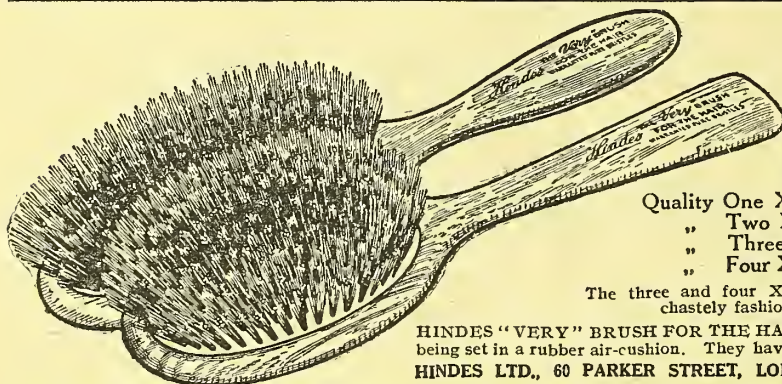
IN CARTONS.

Silvered Wire. Counter-sunk Holes.

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HINDES "VERY" HAIR BRUSH



Quality One X	Sold at 7/6d. each.	TRADE PRICE 33 1/2%
" Two XX	" 10/6d. "	
" Three XXX	" 15/- "	
" Four XXXX	" 18/6d. "	

The three and four XXXX grade is made in Ebony or Rosewood, chastely fashioned in both oval and circular bodies.

HINDES "VERY" BRUSH FOR THE HAIR is guaranteed pure bristles, the multiple tufts being set in a rubber air-cushion. They have been known to the trade for nearly 40 years.
HINDES LTD., 60 PARKER STREET, LONDON, W.C.2. :: Works: BIRMINGHAM

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FREER'S LYSOL TOILET SOAP LAMENA LIQUID NAIL POLISH AND REMOVER DAWSON'S FOOT PASTE

BRILLIANTINE, HAIR CREAM, BAY RUM,
TOILET PARAFFIN, DRY SHAMPOO,
SMELLING SALTS, PETROLEUM JELLY IN
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PROPRIETORS OF LEON FRÈRES' TOILET
PREPARATIONS.

NORTONIA SAFETY RAZOR BLADES.

Samples and Quotations Gladly Mailed.

SPECIAL PRICES FOR WHOLESALERS,
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A LIFE INCOME OF AT LEAST £26 PER ANNUM
for an initial outlay of £24.

OUR PENNY PERSONAL WEIGHING MACHINE

can be placed in the smallest compass and moved like a chair

Will weigh up to 24 stone (3 stone more
than any other machine on the market).

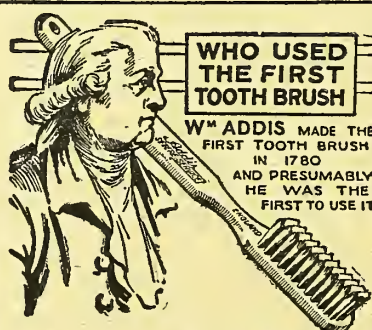
THE IDEAL WEIGHER FOR THE CHEMIST.

Send for full particulars and illustrated list to:

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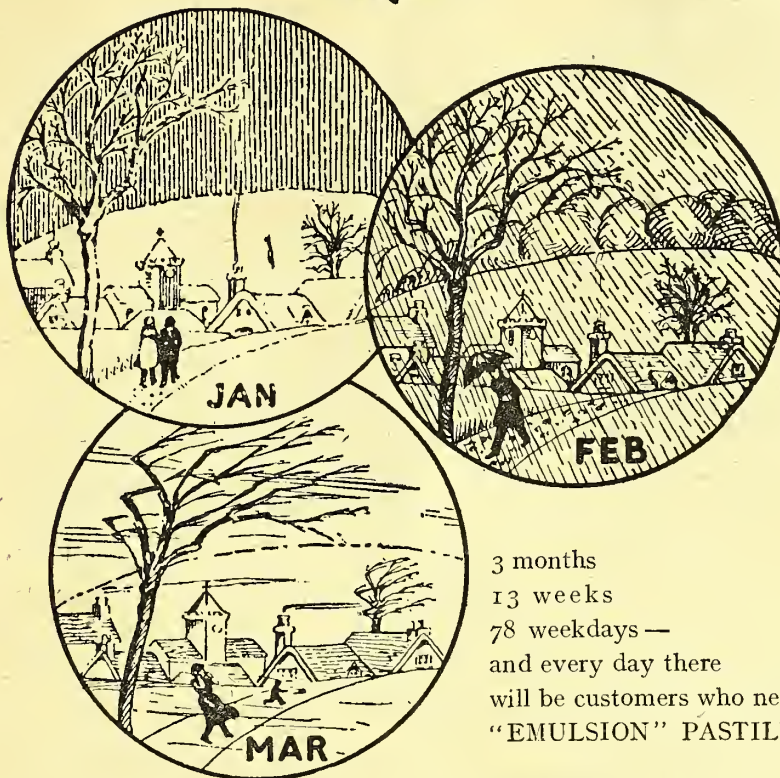
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Ask your Chemist
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of BOOTS for an
ADDIS Tooth
Brush, "PRO-
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or "SEVERE
SERVICE" and
benefit by our
century and a half
of invention and
manufacturing
experience.

ADDIS
BRUSH WORKS, HERTFORD, ENGLAND.



3 months
13 weeks
78 weekdays —
and every day there
will be customers who need
"EMULSION" PASTILLES

The **THREE BEST MONTHS** *for* **"EMULSION" PASTILLES**

THREE months of snow, rain and wind when the public vitality is at its lowest and the public throat needs most protection. Three busy months for the Chemist are now at hand.

So **NOW** is the time for a display of "Emulsion" Throat Pastilles.

Good Pastilles well-displayed are irresistible during these wintry months. It pays the Chemist to make full use of the reputation for quality won by "Emulsion" Pastilles during many years of public trial.

To **EXPORT BUYERS**:—All orders and enquiries should be addressed to our Sole Export Agents
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THOMAS KERFOOT & CO. LTD.
BARDSLEY VALE, LANCASHIRE,
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ESTABLISHED 1797.

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"Your Customers for Horlick's"

For the Elderly Lady

Horlick's is invaluable — its light, easily-digested nourishment takes the place of meat and the more solid items of diet, of which she takes less and less as the years slip by. It is also an efficient corrective of insomnia when taken hot before retiring; it induces restful sleep and at the same time builds up a store of energy and vitality.

Price-protected,
and sales directed through Chemists.



Made in England by

Horlick's Malted Milk Co., Ltd., Slough, Bucks.

7

RIDGE'S FOOD

for Infants and Invalids

WELL ADVERTISED to the GENERAL PUBLIC.

SAMPLES, ADVERTISING MATTER and SPECIAL
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ROYAL FOOD MILLS, LONDON, N.16

NURSE HARVEY'S MIXTURE

A safe, simple and reliable remedy for Children's Ailments is advertised so extensively in the daily and weekly Press as to bring mothers to the retailer without effort on his part.

The selling has been done before the mother reaches the chemist, and, having supplied her, it is only common sense to claim she will buy other family necessities from him. Moreover, the continuous demand for it produces a quick turnover.

For Direct Terms apply to—

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WINE SHIPPERS,
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DIRECT FROM
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To Chemists with Wine Licence only.

We are prepared to grant Agencies to licence holders for our celebrated Ports in districts not already represented.

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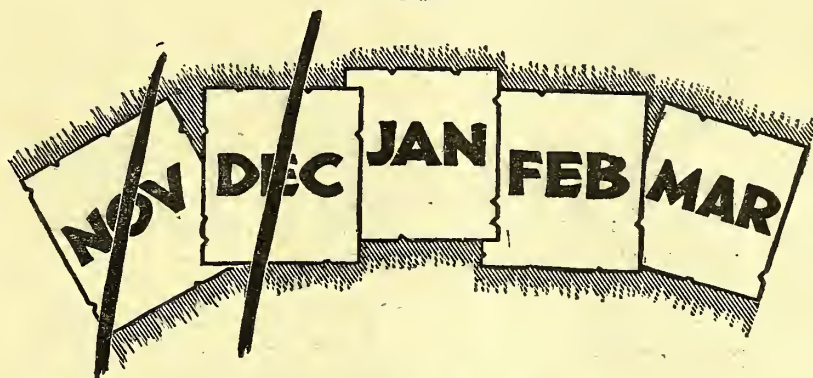
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There are still 3 of the
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—and there is extra profit waiting in them if you will keep up your interest in

Roboleine

THE FOOD THAT BUILDS THE BODY

*by practising continuity of effort
 just as we do in our national
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*Ask us about a Window Display
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OPPENHEIMER, SON & COMPANY LTD.
 179 Queen Victoria Street, London E.C.4.

Manufacturers of "Maglactis," the Pure Hydrate of Magnesia with the continuous action.

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If you want
Snowfire
quickly, mark your
order Urgent and
we will put a supply
on first Passenger
Train.

F. W. HAMPSHIRE & CO. (1927) Ltd.
DERBY.

POTTER & CLARKE

Manufacturing
Chemists

The Sign of
The Winged Lion



Registered
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Drugs LIMITED
Merchants

*Of
proved efficacy-*



*Look
to your
stocks*

POTTER'S CATARRH PASTILLES are of outstanding merit, and the public confirm this statement. They are again being widely advertised to an ever-growing consumer population all over the world, and the demand is keen. There is good business and good profit for YOU in this line,

P.A.T.A. 13 11 - per doz.

In Boxes of $\frac{1}{2}$ Dozens.

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Potter and



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Grams:
Horehound,
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60-64 ARTILLERY LANE, LONDON, E.1.
MANCHESTER: 24 Luna St., Gt. ANCOATS.

1928 will bring
The same old
Resolutions ...



But let one good one
Be to stock Moorland
Heart Shape, for they
Will help to ensure
You a Happy and
Prosperous New Year
By keeping you
Busy the year round

Sales for 1927 nearly 50% up

We thank you for helping us to have another record year with Moorland Heart Shape during 1927. Obviously, 'Moorland' is the brand the public demand.

W. B. CARTWRIGHT LTD.
Rawdon near Leeds

BETTER PRODUCTS

at less cost

by using these **OLEO-RESINS**



THE Oleo-resins of Ginger and Capsicum contain, in an unimpaired state, the full active principles of their respective raw materials. Each of them is in a form convenient for use and extremely concentrated.

StaffAllenS Oleo-resins may be employed in place of the spice from which they are prepared, giving a product equal to that made direct. They offer the advantage of a uniform and easily controlled process, while a considerable saving in time and material is effected. Some uses of these Oleo-resins are given below. Further details, samples and prices may be had on request. STAFFORD ALLEN & SONS LTD., Manufacturing Chemists, Cowper Street, London, E.C.2.

OLEO-RESIN GINGER

FOR GINGER ALE, GINGER BEER, GINGER WINE, ESSENCE OF GINGER, TINCTURE OF GINGER; also in PILLS, TABLETS and for LOZENGES.

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FOR PILLS, TABLETS, LOZENGES, CHILLIE PASTE, THERMAL WOOL and CAPSICUM OINTMENTS; also, where suitable, as a substitute for Cayenne.

StaffAllenS OLEO-RESINS

GINGER AND CAPSICUM




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PHARMACEUTICAL
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P. A. T. A.

..... "NORMACOL"

is now on the P.A.T.A., and your
profit on this quick-selling "Nor-
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TRADE MARK **"NORMACOL"** PATENT
Intestinal Evacuant

*"The best seller I have
known for many years."
a London Pharmacist.*

TINS OF 4 OZS. 2/6.
TINS OF 16 OZS. 9/-

Subject to usual discounts.

H. R. NAPP LIMITED,
3 & 4, CLEMENTS INN, LONDON, W.C. 2.


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The Popularity of Pond's Two Creams

The immense popularity of Pond's Two Creams has caused such an enormous increase in the output that the manufacturers have been enabled to reciprocate the goodwill of the public by a

REDUCTION IN PRICE of small-sized tubes

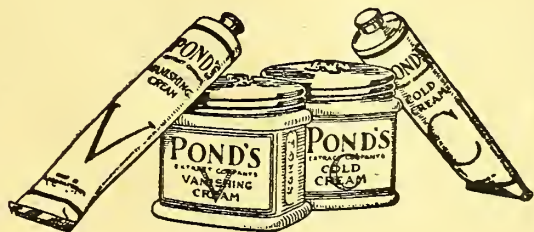
from $7\frac{1}{2}^d$ to 6^d

Sales have shown that women greatly appreciate the handiness of these small tubes for carrying about during the day. This reduction to the convenient price of 6d. is certain to lead to an even greater demand.

This reduction begins on
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Prepare now for the increase in demand

All goods will be invoiced during January at the new trade prices, but the retail price must not be reduced until February 1st.



Pond's Vanishing & Cold Creams

Admiration

ARMAND TOILET AIDS win the admiration of all discriminating women, thus ensuring profitable repeat business.

In ARMAND you have goods of distinctive quality which you can recommend with confidence, knowing that your customers will be completely satisfied.

The profit on ARMAND is admirable—9/6 in the £1.

You cannot stock everything, but you can sell GOOD lines which show you a big profit such as

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offers.

Link up with our Advertising by displaying regularly and recommending frequently—it will pay you.

Price List and further particulars will be sent on receipt of postcard.

FLORIAN & ARMAND, LTD.

Queensway, Ponders End,
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CHAMOIS. SPONGES.

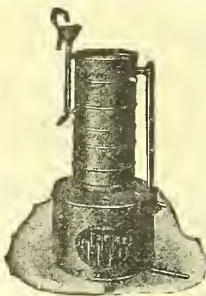
HOUSEMAIDS' GLOVES.
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Phone: Manchester Central 2735. Wires: "Sponges, Manchester"

THE "SOMERSET" DOUBLE WARP

Crepe Bandages

Oldest British Manufacturers. Lowest Prices. Highest Qualities.
SOLE MANUFACTURERS:
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Brown's Stills are perfectly automatic. Can be run night and day without attention. Patented in U.K. and Continental Countries.

Extraordinarily efficient and economical. Made for gas, steam, oil or coke fire heating. Full particulars and prices free on application

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GUMS, ARABIC and TRAGACANTH as Imported or
Finely Powdered. :: SHELLACS ALL GRADES.

CLEAR OUT—your Old or Damaged
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Why keep them any longer? Turn them into CASH.

I GIVE BEST PRICE for Old Films (damaged or expired); Packet Papers; Cards (any sizes). Old Photo Goods or Cameras. Bromide Papers, Plates. Send any goods in the photo line. I buy all, good or bad. Films expiring 1928, all 2½×3½ 45% less Retail Price, other sizes 50%.

Cash per return.

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For COLOURING GREY HAIR

This popular article is largely advertised and stocked by all Wholesale Houses.

Trial size 8d. per doz. ... 6/-

1/4 size, per doz. ... 12/-

2/6 size, per doz. ... 24/-

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GREY HAIRS

← appear just here.

TOUCH THEM UP WITH

TATCHO-TONE

and they will instantly recover their natural shade. Medical Guaranty with each bottle. Chemists' Prices 2/6 and 4/6

TATCHO-TONE CO., 5 Great Queen Street, London, W.C.2

Trial Price
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Post Free

PASTA



MACK

A Delightful Necessity.
For BATH & TOILET

Refreshes and Perfumes the Skin.

PASTA MACK 3/6 size 28/- per doz. Boxes

(Each containing 8 Large Tablets).

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THE LONDON RUBBER CO.

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PHONE CITY 8246. TELEGRAMS: GRUBELARCO, FROME LONDON



MELROSE TABLETS

FOR CHAPPED HANDS
A VERY PROFITABLE SELLING LINE.

Chemists' net prices carriage paid.

2d. tablets - 1/3 dozen. 14/- gross.

3d. tablets 2/- dozen. 6d. tablets 4/- dozen.

From your Wholesaler or

ROBERTS & SHEPPEY

2 Skipton Street, - LONDON, S.E.1.

EXCLUSIVELY A PHARMACY
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Py-SHAN POINTS TEA

SECURES YOU REGULAR CUSTOMERS
AND 7d. PER POUND PROFIT.

Write for full particulars to — Thos. Christy & Co., 4/12 Old Swan Lane, E.C.4



*Have you received
notice of attractive*
SPECIAL BONUS OFFER
in connection with the launching of

Superol

THE NEW BRITISH OLIVE OIL CASTILE SOAP

MADE WITH FINEST
CASTILIAN AND ANDALUSIAN OLIVE OIL
by FLEUROL (London) LTD., a subsidiary of
THOS. HEDLEY & Co., LTD., the famous independent
soap firm established nearly a century?

IF NOT—

WRITE TO-DAY

FOR SAMPLES

AND TERMS.

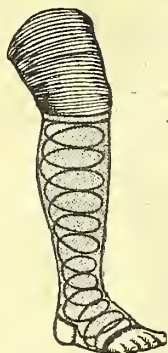


FLEUROL (London) Ltd.

Sales Office : (Directed by W. H. CALNAN) EATON ROW, S.W.1.

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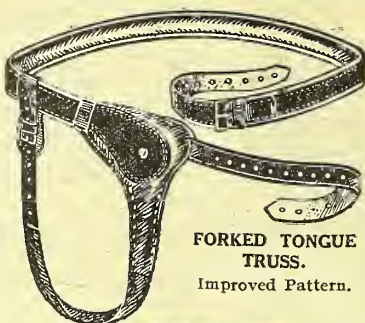
Seamed and Seamless.



CRÈPE VELPEAU BANDAGES

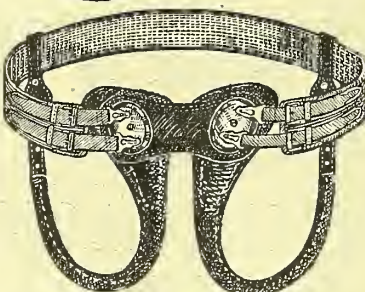
WE ARE SOLE AGENTS.

TRUSSES Spring and Elastic.



FORKED TONGUE
TRUSS.

Improved Pattern.

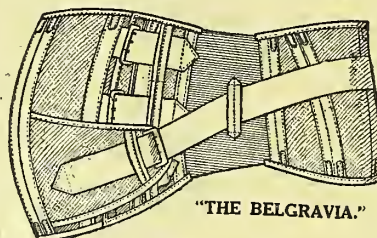


DOUBLE SCROTAL ELASTIC TRUSS.

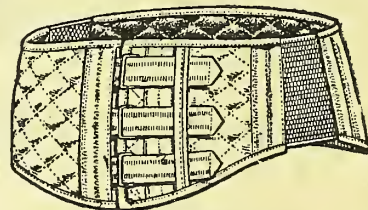
ANY PATTERN.

ALL QUALITIES.

ABDOMINAL BELTS ABDOMINAL SUPPORTS WOVEN ELASTIC CORSETS SUSPENSORY BANDAGES



"THE BELGRAVIA."



"THE LUMBAGO."

MANUFACTURED ON THE PREMISES AT CROWN ROAD WORKS.

THE R. H. HEWARD CO., SURGICAL APPLIANCE MANUFACTURERS TWICKENHAM.

Best sellers

The public is asking
for **ZEAL**
CLINICAL
THERMOMETERS
because they are:-

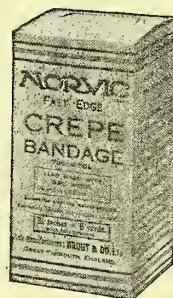
GUARANTEED TO
STAY ACCURATE
CONSISTENTLY
ADVERTISED

Made by

ZEAL

-the name the
public knows.

G. H. ZEAL, LTD.,
75 & 77, St. John St., London, E.C.1.



Women are
asking for
these daily

"Flesh Colour" practically
invisible under silk stockings
appeal to all those who suffer
from or fear varicose veins. Dainty,
soft, washable and hygienic.

NORVIC

REGD.

CRÈPE BANDAGES.

In 2, 2½, 3, 3½ and 4 in.
widths, made up in neat
packages for the counter.

Ask your wholesaler for
the "Norvic" showcard
with your supplies.

Grout & Co., Ltd.
35, Wood Street,
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(Stocked
by all
wholesalers).



*New Designs in Pressure Filters.
Filling Machines for all liquids and sizes of bottles.*



RAPID FILTERS

Latest designs for Rapid Filtering of Essences, Tinctures, Syrups, Cordials, Wines, and Spirits.

All Sizes Stocked.

Absolute brilliancy and great speed.

ASBESTOS FOR FILTERING
2/- per lb.

JNO. P. JACKSON & CO., LTD.
POWNALL SQUARE, LIVERPOOL

PERKEN, SON & CO., LTD.

Established 1852.

Contractors to H.M. Government.

THE
"MATER"
CLINICAL
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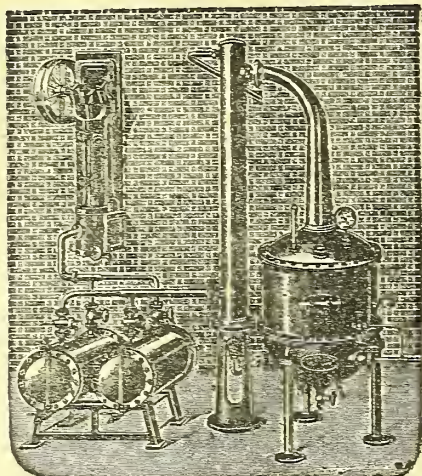
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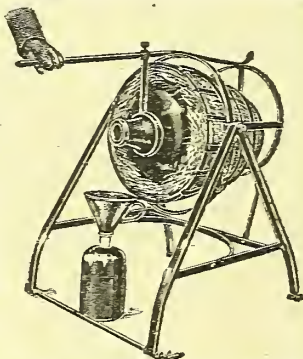
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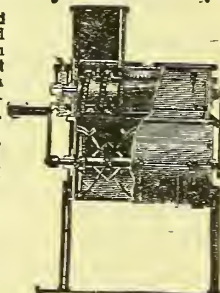
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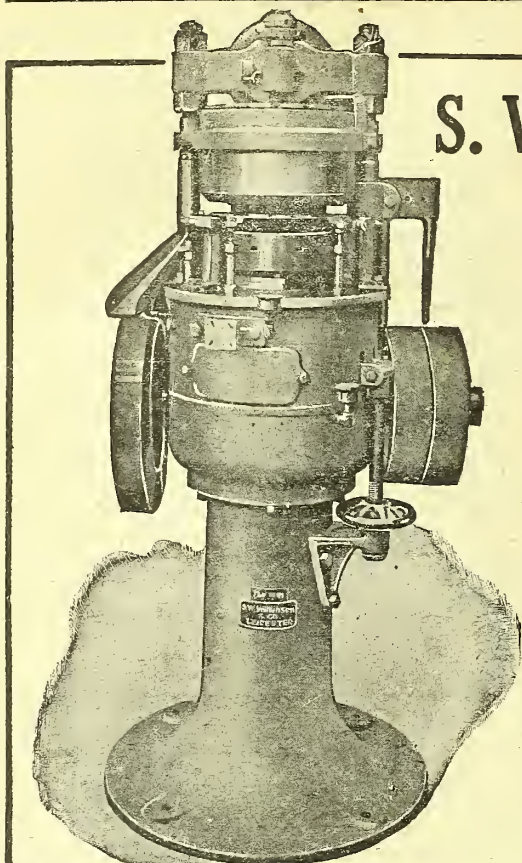
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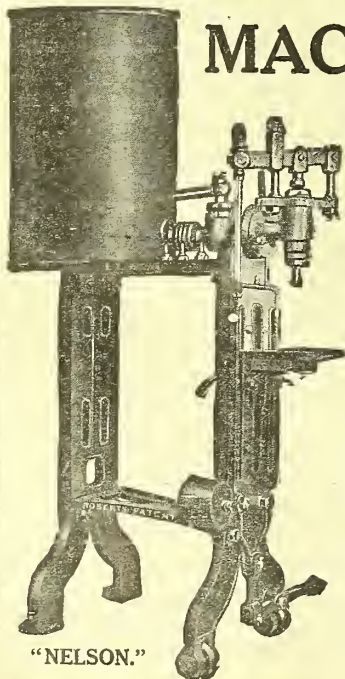
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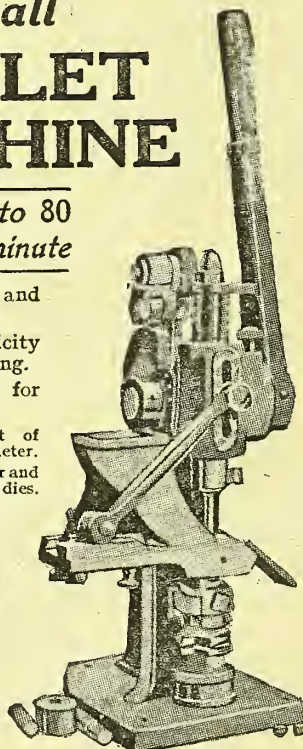
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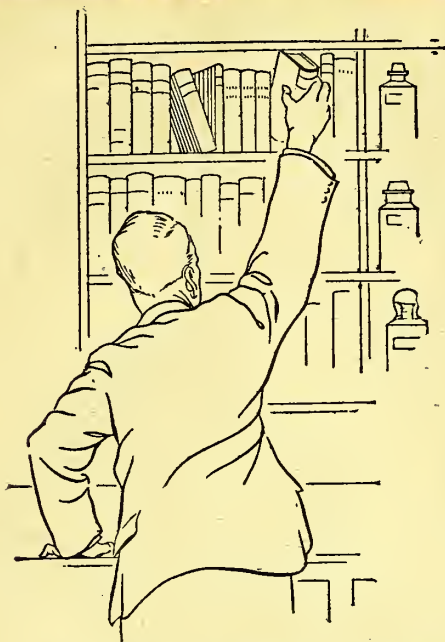
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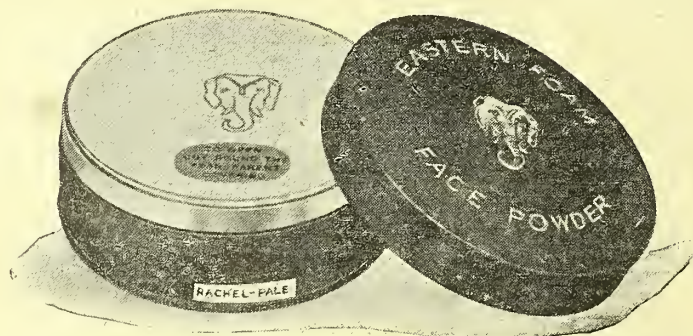
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Coming Events

This section is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

Wednesday, January 4

- Pharmaceutical Society of Great Britain*, 16 Bloomsbury Square, London, W.C., at 11 a.m. Council meeting.
Pharmaceutical Society of Great Britain (Manchester and Salford Branch).—Junior section's dance.
Portsmouth Pharmacists' Association, Goodie's Café, Elm Grove, Southsea. New Year's party. Tickets (3s. 6d. each) from Mrs. E. A. Murray, 20 North End Avenue, Portsmouth.

Thursday, January 5

- West Ham Association of Pharmacists*, Y.M.C.A., Greengate Street, Plaistow, at 7 p.m. New Year's party (in aid of Benevolent and Orphan Funds of Pharmaceutical Society). Tickets (3s. 6d. each) from Mr. J. Reed, 32 Church Street, London, E.15.
National Association of Women Pharmacists, Suffolk Street Galleries, Suffolk Street, W.1, at 7.30 p.m. Tickets (7s. each) from the secretary or any member of Committee.

English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

New Standard of Length

The Board of Trade, with the approval of his Majesty in Council, has established as a new "denomination of standard" the measure of 100 inches in length, which measure thus ranks with those mentioned in the second Schedule of the Weights and Measures Act, 1878. The text of the direction appeared in "The London Gazette" of December 23.

Safeguarding of Industries Act

The Board of Trade proposes to exempt metaldehyde from duty under the Safeguarding of Industries Act. This is in consequence of a representation that the article has not been made in substantial quantities in the British Dominions. Notice has been given that anyone wishing to communicate with the Board of Trade on the subject should write to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London, S.W., within a month.

The Commissioners of Customs and Excise have prepared a notice (No. 161) explaining the arrangements which have been made, with the consent of the Postmaster-General, for the importation of certain *bona-fide* trade samples of dutiable chemicals by sample post.

Proprietary Articles Trade Association

The result of the P.A.T.A. Council election was declared on December 21 as follows:—*Manufacturers' Section*.—Allen & Hanburys, Ltd. (123); Thos. Christy & Co. (112); D. & W. Gibbs, Ltd. (141); Newton, Chambers & Co., Ltd. (90). *Wholesale Section*.—Sangers (36); W. Edwards & Sons (35); Raimes, Clark & Co., Ltd. (35); Ayrtton, Saunders & Co., Ltd. (31). *Retail Section*.—No contest.

Inquests

The West London coroner held an inquiry, on December 23, concerning the death of Francis William Taylor, described as a chemist's dispenser, who was found poisoned in a Paddington boarding house. A bottle of morphine tablets was found in his room. The verdict was "Suicide while of unsound mind."

Witnesses disagreed, at a recent Barnsley inquest, as to whether a boy aged thirteen asked in a shop for castor oil or camphorated oil. Joseph Spencer, aged forty-six, drank the camphorated oil which was supplied, and died shortly afterwards. A medical witness said that the bottle produced contained sixteen times the maximum dose. An open verdict was recorded.

An inquest was held in Lambeth (London), on December 28, on the body of George W. Edmonds, metal sorter. It appeared that, in consequence of fracturing a rib by a fall, he was treated by a doctor, who prescribed medicine and pills containing morphine. Edmonds, instead of taking the eight pills in four doses, took them all at once, as well as an excessive quantity of the medicine. Death was accelerated by the morphine. A verdict of "Accidental death" was recorded.

The Shoreditch (London) coroner held, on December 23, an inquest on the body of John W. Hutley, aged two months. It was shown that in the course of his treatment at the Queen's Hospital for children he was ordered a saline solution, and a nurse, unaware of a difference between the contents of two similar bottles, used a solution of twenty times the correct strength. Dr. R. M. Brontë, pathologist, explained that the concentrated saline solution drew the water from the blood into the tissues of the child, with the result that it died from loss of blood, although there was no actual loss of blood from the body. The coroner recorded a verdict of "Death by misadventure." "I need hardly add," he said, "that the hospital authorities will take steps to prevent the possibility of a similar error."

The death of Mrs. Amy A. B. Selwyn, Ormonde Terrace, N.W., was investigated by the deputy coroner

for West London on December 23. Evidence showed that a week before her death Mrs. Selwyn had returned from a nursing home, where she had been treated for morphine addiction. She then brought with her two prescriptions—one for 100 tablets of Allonal, and the other for paraldehyde and chloral. A witness representing the firm of chemists dispensing the prescription was asked by the coroner: In dispensing that prescription did not you require the signature of a doctor?—No, we have only to enter it in the poison book. Did not you think it unwise to dispense such a quantity of such a drug?—I recalled our having done so before. Would you prepare a similar prescription if called on to do so?—I might get the confirmation of a doctor, but the law does not compel me to. A medical witness said it was unwise to use the prescription outside a hospital. A verdict of "Suicide while of unsound mind" was recorded.

Poison-Licence Application

At a recent meeting of Taunton Town Council, a discussion arose over the application of Mr. S. A. Bradbury, seed merchant, for a licence under Section 2 of the Poisons and Pharmacy Act, 1908. The application had been refused by the general purposes committee of the Council. In moving that the application be granted, the proposer said the section of the Act dealing with the matter clearly defined that the section was intended to deal with the trade outside the chemists, for it was recognised that chemists did not meet the particular requirements of horticulturists, agriculturists, and florists. He claimed that it was intended that preference should be given to nurserymen, florists, seedsmen, and other persons whose business was specially connected with horticulture. Originally, he believed, florists and seedsmen had the right to sell the poisons in question, but when that right was withdrawn he did not know. He felt that in withholding this licence, the Council were not doing justice to the people who had not the specialised knowledge to enable them to go to a chemist and state their specific requirement. On the other hand, qualified seedsmen would be able to give advice, but if a person had to go to a chemist to get what he required, perhaps the qualified seedsman would not take the same amount of interest as he would otherwise. In explaining the legal position and the action taken by the general purposes committee, an alderman said he did not think there was any question that the Legislature in framing the Act had in mind the fact that those substances were extremely dangerous, and that, rightly or wrongly, the proper people to deal with them were those who had qualified by examinations and already dealt in other poisons, and were subject to regulations. At present in Taunton there were eleven shops controlled by qualified chemists, where poisonous preparations could be obtained, although it was stated that the demand for them was very limited. After further discussion, the motion was carried by eleven votes to eight.

Contracts

The following tenders have been accepted by the bodies named:—

Chipping Norton Town Council.—Mr. O. L. Carrington, chemist and druggist, disinfectants and weedkiller.

Reading Guardians.—Bradley & Bliss, Ltd., manufacturing chemists, drugs and sundries.

Birmingham

Sir William Brag, F.R.S., gave an address on the examination of metals by the α -rays on December 15 at the Midland Institute.

It is hoped that the new pharmaceutical laboratories at the Birmingham Technical College will be ready for occupation early in January.

The Alchemy R.A. Chapter, 3950 (per Mr. Maurice Smith, Ph.C., charity steward), sent £2 2s. to the "Birmingham Mail" Christmas Tree Fund.

Miscellaneous

BURGLARY.—The premises of Mr. G. Thomas, chemist and druggist, Cowbridge Road, Cardiff, were broken into recently and a quantity of perfumery was stolen.

WINDOW-DRESSING AWARD.—In a shopping week window-dressing competition, held at Clevedon recently, the first prize in the class for chemists was awarded to Mr. J. H. Shepherd, Ph.C., Hill Road.

SALE OF FOOD AND DRUGS ACTS.—At West London Police Court, on December 15, Frank Butler, grocer, Moore Park Road, S.W., was fined 20s., with 40s. costs, for having sold a diluted acetic acid as malt vinegar.—At Tower Bridge Police Court, recently, Edward H. Wood, Farncombe Street, S.E., was fined 10s., with costs, and Maria Warren, Fulford Street, was fined 20s., with costs, in respect of sales of vinegar found to be deficient in acetic acid.

SALES CONVENTION.—Following a sales conference held in London, recently, Gilmont Products, Ltd., proprietors of New-Mix dental cream, Crutched Friars, E.C.3, entertained the sales staff at a dinner and theatre. Among those present were:—Mr. J. D. Teasdale, director; Mr. D. C. Stone, sales manager; Messrs. A. R. Andrew, W. C. Bland, P. J. Broadbridge, F. E. Clarke, O. J. Hammond, R. Howe, H. B. Raby, H. C. Pearson, Forbes Taylor, salesmen; and Mr. H. V. Bowler, Ph.C., chief chemist.

FIRES.—The following outbreaks of fire have been recorded since our last report:—There was a slight outbreak of fire recently at the premises of Mr. W. Bernstein, chemist and druggist, Balls Pond Road, London, N., due to some goods coming in contact with a radiator. The damage was not of an extensive nature.—Essential oil coming into contact with flame caused an outbreak of fire, on December 22, at 34 Queen Street, Hammer-smith, W., the premises of the Standard Synthetics, Ltd., manufacturing chemists. The contents of the building were damaged and part of the roof was destroyed.

Irish News

Brevities

A serious fire occurred some days ago in Dr. Crawley's Medical Hall, Main Street, Dunmanway, co. Cork. The stock-in-trade was almost completely destroyed and the fittings, etc., demolished.

The Magerafelt Technical Committee recently established a class for pharmaceutical students, and have now extended the hours for the four students attending classes from 4 to 6; the extra expense is to be borne *pro rata* by the students.

An agitation has been raised recently with the Free State for a modification of the clauses of the Intoxicating Liquor Act which govern the granting of wine licences. It is complained that the existing provisions prejudice the interests of particular trades which hold these licences with the past.

During the nine months ended September 30, 1,795 cwt. glycerin, valued at £5,416, was exported from the Irish Free State, compared with only 1,367 cwt. and £3,685 respectively, during the corresponding period of 1926. The exports of drugs, medicines, etc., of Irish production declined from £3,665 to £3,314 during the same period.

The annual dinner of the Pharmaceutical Society of Ireland for 1928 promises to outdistance in success even that for 1927, when the function was revived after having been allowed to lapse for a very long period. The event is fixed for January 10, and will be held in the Metropolitan Ballroom, O'Connell Street, Dublin. The following committee have been charged with the making of the arrangements:—Mr. F. J. Fitzpatrick, P.C. (president), Mr. D. J. Nugent (vice-president), Sir Thomas W. Robinson, Messrs. John Smith, T. J. Doyle, P.C., J. J. Roche, P. D. Larkin, D. Warwick, and P. Brooke Kelly, with Mr. Victor E. Hanna as hon. secretary. The Governor General of the Free State has promised to attend, and invitations are also being sent to other prominent citizens and people in the trade. Country members may obtain railway vouchers for cheap tickets on application.

Belfast

Mr. R. I. Edwards, Ph.C., Belfast, chairman of the 13th Belfast Troop of Boy Scouts, presided recently at a meeting given to welcome Sir Frederick Cleaver, the new president.

At the Police Court, recently, Gerald F. Pepper, 38 Templemore Avenue, who was summoned at the suit of the Dental Board of the United Kingdom for practising dentistry, he not being a registered dentist under the Statute, was fined £10.

Stated to be known to the police as the "Cigarette King," John Maxwell pleaded guilty in the Belfast Police Court on December 23 to the theft of 1,200 cigarettes, the property of Elliott, Thompson & Blair, wholesale druggists, Corporation Street, on December 8. 'Accused was sentenced to three months' imprisonment with hard labour.

Scottish News

Brevities

Strong efforts are being made by the Scottish Pharmaceutical Federation to secure the membership of everyone who is eligible.

Mr. George Slater, chemist and druggist, 14 Main Street, Findochty, Banffs, has been returned unopposed as a member of the Town Council.

Mr. James R. Sutherland, chemist and druggist, Dalkeith, passed the recent Fellowship examination of the British Optical Association, held at the University of London.

Mr. G. J. Lindsay, chemist and druggist, 111 Nethergate and 5 High Street, Dundee, has opened a new shop at 3 Castle Street, as the High Street property is to be pulled down.

"*The Chemist and Druggist Diary*, 1928, now occupies the premier place on the majority of Scottish chemists' bookshelves as a pharmaceutical and business encyclopædia. For ready reference its use was never more appreciated than to-day."

Fife

Christmas business hardly came up to expectations.

Most photographic chemists have been circularised on the proposal to form a manufacturers' and dealers' association. "The lead given in this direction," writes a correspondent, "might with advantage be followed by all pharmaceutical bodies in respect of the sale of medicines by the chemist."

Glasgow

Dr. Joseph Knox, of Glasgow University, in an article to the "*Glasgow Herald*" of December 16 on "The Limit of Chemical Analysis," discussed sensitivity of tests, positive ray analysis, conductivity, electromotive force and colour reactions.

Industrial Spirit Concession

WE have received from the secretary of the Pharmaceutical Society of Great Britain the following copy of a letter, dated December 23, received by him from the Board of Customs and Excise:—

With reference to your recent visit to this office when the use of industrial methylated spirits in making the B.P. liniments of mustard and croton oil was discussed, I am directed by the Commissioners of Customs and Excise to inform you that they are prepared to allow the use of the spirits for making the preparations in question, subject to the usual conditions applicable to the use of industrial methylated spirits. It will be understood that each individual manufacturer who desires to make the liniments from industrial methylated spirits should make application to the local Customs and Excise Officer in the usual way.

I am, Your obedient Servant,
(Signed) E. BERTENSHAW.

Chemists' Windows

Photographs of windows sent to the Editor for reproduction should be accompanied by notes as to the arrangement of the displays.



PRIZE REXALL WINDOW DISPLAY SHOWN BY MR. PETER FENTON, KIRKCALDY

Canadian Notes

TALC AND SOAPSTONE.—The production in Canada during 1926 amounted to 15,767 tons, valued at \$217,195. In 1925, shipments totalled 14,474 tons worth \$205,835. Importations of talc or soapstone, ground or unground, into Canada during 1926 were recorded at 4,213 tons, valued at \$89,026, and exports of refined talc were 10,823 tons, valued at \$125,633.

HABIT-FORMING DRUGS.—The history of Pharmacy in British Columbia was the subject of an interesting paper by Joseph H. Emery, Victoria, B.C., presented at the fifteenth annual convention of the Canadian Pharmaceutical Association, held at Regina, Sask. In the course of his subject, Mr. Emery claims that British Columbia enjoys the distinction of being the first country to enact any law against habit-forming drugs. Pharmacist Frank Mackenzie brought in a bill which received its third reading on March 11, 1911, to which allusion was made in the *C. & D.*, of July 1, 1911. This bill controlled the handling of cocaine, alpha and beta eucaine, morphine, heroin, etc., and with certain amendments subsequently made is still law to-day.

THE P.A.T.A.—At a special meeting of the manufacturing section of the P.A.T.A., held at Montreal, on November 9, a resolution was passed, with only one dissentient, agreeing to withdraw from connection with the P.A.T.A. and disband. Interest in the trade now centres in the legal action which, no doubt, will be taken to prevent the P.A.T.A. from further operating. It is an open question whether this will come from the Federal government, or from the several provincial governments individually. Either government, it is believed, has the right to act, but if the Federal government leaves it to the different provinces to act, the suppression of the P.A.T.A. may not come so quickly, as in provinces where the government and the business community looks kindly on the P.A.T.A. the attorneys-general may not show any haste in following up the lead given by the Dominion commissioner, N. B. Douglas, secretary of the Retail Merchants' Association of Canada, has issued a statement in defence of the P.A.T.A.

Westminster Wisdom

Notes on Parliamentary Matters

PARLIAMENT WAS PROROGUED

on Thursday, December 22, until Tuesday, February 7, 1928. Royal Assent was given to 32 measures, including the Cinematograph Films Act, 1927; Unemployment Insurance Act, 1927; Destructive Insects and Pests Act, 1927; Landlord and Tenant Act, 1927; Nursing Homes Registration Act, 1927; Medical and Dentists Acts Amendment Act, 1927.

OLIVE OIL ADULTERATION

Sir B. Peto asked the Minister of Health on December 21 whether his attention has been called to the fact that, in order to utilise the stocks of ground nuts in Spain that have accumulated this year, the mixing of oil from these nuts with olive oil has been authorised; and whether he will take steps to prohibit the importation of this adulterated oil into this country? Sir K. Wood: Yes, Sir; my right hon. Friend's attention has been drawn to this matter, but he has no power to prohibit the importation of the mixed oil. It would be illegal under the Sale of Food and Drugs Acts to sell the mixed oil as olive oil, but there is nothing in those Acts to prevent its sale under some accurate description.

NATIONAL HEALTH INSURANCE

Replying to Mr. D. Grenfell, on December 22, Sir K. Wood stated that the amount of contributions paid into the National Health Insurance Funds in Great Britain for the years specified was in round figures: 1924, £27,000,000; 1925, £28,000,000; 1926, £24,500,000. Exact particulars are not available as to the number of weeks for which sickness benefit and disablement benefit were paid, or as to the number of persons in receipt of benefit for any year. It may, however, be estimated that the total number of weeks of sickness represented by the amounts paid as sickness and disablement benefit in each of the years specified was, on a rough approximation: 26 million weeks in 1924; 28 million weeks in 1925; 31½ million weeks in 1926.

Legal Reports

Agreement Dispute.—In the Chancery Division of the High Court, London, on December 21, Mr. Justice Russell gave judgment in an action brought by Mr. William Henry Parry, pharmacist, Dudley Road, Finchley, N.W., against S. H. Travis & Co., wholesale chemists, King's Road, St. Pancras, N., claiming a declaration that a partnership or joint adventure was entered into between the parties for the acquisition and disposal of certain chemical and medical drugs, surgical instruments, and other goods. The defendants disputed the claim. The dispute arose out of the purchase and resale of war surplus medical stocks in 1926 (*C. & D.*, December 10, p. 726). His lordship, giving judgment, said this was a pure question of fact, which depended entirely on oral evidence as to whether this was a partnership, or whether, as the defendants said, the plaintiff was only a servant or employee of the defendants, and there was no partnership. His lordship said that, having seen the witnesses, he had come to the conclusion that the plaintiff had given honest evidence, and had given it well. On the other hand, there was very little corroboration of the defendants' story. Throughout the plaintiff seemed to have taken a sane view of the situation, and had shown clearly that there was a partnership arranged over the sale of these goods. He (his lordship) must hold that the partnership had been clearly proved, and must grant a declaration to that effect with the usual inquiry as to the accounts. He would also adjourn further consideration of this matter. The plaintiff therefore succeeded in the action, and would have the costs up to the present time.

Unauthorised Medical Man's Attempt.—At Chippenham, on December 22, Mr. Tyler Pleydell Carter, M.R.C.S., L.R.C.P., was summoned on two charges of attempting to obtain possession of a "dangerous" drug

after his authorisation had been withdrawn. Mr. G. R. Paling, for the Director of Public Prosecutions, said that the Home Secretary withdrew on October 21 the authorisation which Dr. Carter had, and on October 25 a notice was served upon Dr. Carter. On October 27 the doctor wrote to a firm of wholesale chemists in London: "Please send one dozen ampoules of your Omnopon, and I shall be glad to know what my indebtedness is." On the following day the same firm received another letter from Dr. Carter as follows: "I shall be glad if you will send two dozen ampoules; I am finding these very useful." There was $\frac{1}{2}$ gr. of morphine in each ampoule. Evidence was given by Mr. L. Bailey, chemist and druggist, advertising manager to the London chemists. Pleading "Not guilty," Dr. Carter said that if the proceedings were allowed to stand it meant to him total disbarment from his practice. "I say that no authority in this country can disbar me and take away my means of a living," he declared, "excepting the General Medical Council, by whom I am registered, and from whom I obtained these privileges. I do not recognise this Act, and my profession does not. We did not ask for it, and we do not want it. It stinks in our nostrils, and every registered chemist will tell you the same. Half of them will not keep this stuff. I say it means persecution of me and of my profession as a whole." The defendant was bound over for twelve months on the condition that he entered a home forthwith.

Conversion Award.—A dispute respecting 700 barrels of turpentine was heard by Mr. Justice Roche in the King's Bench Division, London, on December 21, in an action in which the plaintiffs were Messrs. F. B. Hannam and A. A. Savill, lately trading as Gerald Quin Cope & Co., bankers, and the National City Bank of New York, and the defendant was Mr. H. F. C. Arp, shipowner, Hamburg, with the National Provincial Bank, Ltd., as third parties. The plaintiffs claimed, as holders of the bills of lading, damages from Mr. Arp, or alternatively against the bank, for alleged conversion of the turpentine, on the ground that it was delivered without the production of the bills of lading. It was stated that the delivery was, in fact, made against bankers' guarantee, and the shipowner had brought the bank in as third parties, claiming indemnity against them in the event of the plaintiffs being found entitled to recover against Mr. Arp. His lordship said he found the cause of the trouble was the fraud of an official who was at the time in the office of the buyers of the turpentine, Messrs. Farnan & Co. He was satisfied there was no fraud on the part of anyone connected with the Thames Oil Wharf Co., at whose wharf the goods were discharged from the ship, though they were innocently negligent in parting with the goods, for which an indemnity was tendered. In his opinion, there had been conversion, and circumstances had not arisen which enabled it to be said that defendants had satisfied the Court that Quin Cope & Co. got back their goods which were converted, so that their damage was at an end. The plaintiffs were entitled to judgment for an amount to be found, and when he said the plaintiffs he meant the National City Bank of New York, because they had a title to the goods at the time of the conversion, and it was for the benefit of Quin Cope & Co. that the National City Bank was entitled to bring the action and recover. His lordship gave judgment for the National City Bank of New York for £7,000, and made an order as to their costs. Judgment was given for the defendant in respect to the other plaintiffs. The judge also held that the bank, as third party, were liable under their guarantee, and that the defendant was entitled to recover the £7,000 from them.

THE newest automatic machines at a Blackpool hotel provide ammoniated quinine, aspirin and soda-mint tablets.

C. & D. DIARY CHANGES.—Since *The Chemist & Druggist Diary*, 1928, was put to press the following Association changes have been notified:—Birmingham, President, T. H. Foden; Secretary, D. J. Rushton, 1088 Stratford Road.—North Irish, President, J. C. Culbert; Secretary, J. Adams, Ballyhackamore, Belfast.—Proprietary Association of Great Britain, address now 43 Gordon Square, London, W.C.1.

New Companies and Company News

P.C. means Private Company and R.O. Registered Office.

NATIONAL ADHESIVES, LTD. (P.C.).—Capital £1,025. Objects: To carry on the business of manufacturers, importers and exporters of and dealers in gums, glues, gelatines, sizings, starches, dextrines, and other adhesives, etc. The first directors are: A. Ellis and S. Risbey. R.O.: Charterhouse Chambers, Charterhouse Square, E.C.1.

ENGLISH GLORY, LTD. (P.C.).—Capital £700. Objects: To adopt an agreement with Edith Shepherd and to acquire the recipe for a hair tonic manufactured and sold by her under the name of "English Glory Brightening Tonic." The directors are Miss E. Shepherd and Miss K. A. Gould. R.O.: 21 Palace House, Shaftesbury Avenue, W.1.

H. D. STARKEY, LTD.—The business of Mr. H. D. Starkey, chemist and druggist and optician, High Street, Antrim, has been turned into a private company with a nominal capital of £2,000. The signatures on the memorandum of association are:—Samuel Fawcett, High Street, Antrim, one share; Maggie Fawcett, High Street, Antrim, one share; and Joseph W. Fawcett, High Street, Antrim, one share.

JAMES F. RIGBY, LTD. (P.C.).—Capital £500 in £1 shares. Objects: To acquire the assets of the pharmacy of J. F. Rigby at 27 Palatine Buildings, Moss Lane West, Manchester. The first directors are: J. F. Rigby, 14 Claremont Road, Moss Side, Manchester, pharmacy proprietor, and Mrs. A. Rigby, 14 Claremont Road, Moss Side, Manchester. R.O.: 27 Palatine Buildings, Moss Lane West, Manchester.

NORWOOD DRUG STORES, LTD. (P.C.).—Capital £1,000. Objects: To acquire the business of the Norwood Drug Stores, of 41 High Street, West Norwood, and to carry on the business of chemists, druggists, opticians, dealers in surgical, photographic and wireless goods, etc. The directors are: T. E. Barrett, 41 High Street, West Norwood, S.E.27, and C. J. Cooke, 109a Knights Hill, West Norwood, S.E.27. R.O.: 41 High Street, West Norwood, S.E.27.

NATIONAL CHEMICAL HOLDINGS, LTD.—Capital £250,000 in £1 shares. The company was incorporated in Guernsey on November 19, 1927, to carry on the business of chemists, druggists, drysalterers, perfumers, oil and colour men, etc. The British address is at Appleby House, 46 St. James Place, S.W.1, where H. B. Randolph is authorised to accept service of process and notices on behalf of the company. The directors are: The Earl of Westmorland, H. B. Randolph, F. A. Slocombe and G. M. Williams.

Gazette Bankruptcy Acts

RECEIVING ORDER

DUNCAN, A. E., & SON, 27 Mincing Lane, London, E.C., produce brokers.

ADJUDICATION

BURTON, J. E. (described in the receiving order as E. C. Burton), 241 London Road, Westcliff-on-Sea, chemist, trading as the Golden Lion Pharmacy.

Business Changes

MR. EDWARD MULLETT, drug merchant, 4 New London Street, London, E.C.3, announces that he has negotiated with Mr. Bertram E. Joseph, 9 Mincing Lane, E.C., whereby he will conduct his business under Mr. Joseph's name and address.

MR. DAVID SAUNDERS, F.S.M.C., chemist and druggist, is about to open a pharmacy and optical business at 142 Cowbridge Road, Cardiff. All communications should be addressed for the present to 84 Connaught Road, Cardiff. [Corrected note.]

Bankruptcy Reports

Re Norman Henry Teakle, produce broker, Dunster House, Mincing Lane, E.C.—Under a receiving order made against this debtor on December 8 the statutory first meeting of creditors was held on December 22 at Bankruptcy Buildings, Carey Street, W.C. A statement of his affairs was submitted, in which he returned his liabilities at £8,885, of which £4,438 are expected to rank, and valued his assets at £356. It appeared from statements that had been made by the debtor, so reported the Official Receiver, that from 1920 until January 1926 he was employed by a firm of produce brokers as a market clerk. In the following March, in partnership with two others, he began trading on his own account as a produce broker, but in consequence of lack of capital the partnership came to an end at the end of eight months, although there was a growing business. A new partnership was then started, with premises at Dunster House, and the firm transacted a successful business, but in consequence of pressure on the part of private creditors and of disagreement with his partners the debtor sold his share in the firm and retired. He afterwards traded alone for two months, and then again began business in partnership, but from December 5 he was compelled to resign from the firm owing to the bankruptcy proceedings which had been instituted against him. He attributed his insolvency to debts incurred while without income for some months early last year and to the failure of one of his partners to provide capital as promised, as a result of which he (debtor) was compelled to indemnify the guarantors of a bank loan in respect of which he had been personally sued. The meeting passed a resolution for the appointment of Mr. F. W. Davis, C.A., as trustee of the debtor's estate.

Wills

MR. ROBERT GEORGE MURRAY, of One Ash, Hyde Road, Gorton, Manchester, chemical manufacturer, who died on September 9, left estate of the gross value of £10,020, with net personalty £9,021.

MR. WALTER EDWARD HEWES, of 19 Hartington Road, Chorlton-cum-Hardy, Manchester, retired chemical merchant, who died on October 14, left estate of the value of £29,799, with net personalty £18,793.

MR. JOSEPH BOYLE, of 14, Stanley Street, Glasgow, chemist and druggist (J. & R. Rodman, chemists, 285 Duke Street, Glasgow), who died on September 29 last left personal estate valued at £6,594.

MR. JAMES DALZIEL SIMPSON, of Conimbla, Shettleston, N.B., connected with Shettleston Oil & Chemical Co., Ltd., who died on October 19 last, left personal estate in Great Britain valued at £4,379 15s. 6d.

MR. JOHN RENWICK BELL, of 14 Newgate Street, Newcastle-upon-Tyne, chemist and druggist, who died on August 26, aged 59 years, left estate of the gross value of £1,578 7s., with net personalty £275 15s. 11d.

MR. CHARLES THORNEY, of Greystone, Ilfracombe, Devon, chemist and druggist, who died on October 10 last, aged 81 years, left estate of the gross value of £3,120 8s. 7d., with net personalty £3,101 5s. 5d.

MR. ALFRED BOOTH STOCKS, 9 Oak Lane, Bradford, chemist and druggist, left estate of the gross value of £3,421 18s. 7d., with net personalty nil. Probate has been granted to his widow, Mrs. Annie Stocks, the sole executrix.

MR. GEORGE HARRIS, 201 London Road, Kingston, Surrey, chemist and druggist, formerly in business at Kingston Hill, who died on October 14, left estate of the gross value of £2,229 16s. 9d., with net personalty £372 19s. 3d.

MR. THOMAS WILLIAM PRITCHARD, of 40 New Street, Thornaby-on-Tees, Yorks., herbalist, a member of the Town Council, and a member of the Middlesbrough Board of Guardians, who died on August 9, intestate, aged 69 years, left estate of the gross value of £1,355 5s. 4d., with net personalty £817 10s. 8d.

The Progress of Pharmacy

AND ALLIED SCIENCES

PHARMACY

Calot's Solution.—M. R. Guttman ("Illinois Medical Journal," August 1927) gives the following formula for Calot's solution as used by him in the treatment of chronic otorrhoea:—Guaiacol, 1 gram; creosote, 5 grams; ether, 30 c.c.; iodoform, 10 grams; olive oil, 70 c.c.

Krameria Ointment.—E. Goldhammer ("Dermatologische Wochenschrift," Vol. 84 (1927), p. 529) gives the following formula for krameria ointment, which he recommends as an application to hasten epitheliation:—

Thymol	...	...	1 gram
Extract of krameria	...	...	10 grams
White wax	...	...	18 grams
Lard	...	...	71 grams

Adrenalin Solution.—M. Malmy ("Journal de Pharmacie et de Chimie," November 1, 1927), as a result of a series of experiments, recommends the following formula for the preparation of solution of adrenalin:—

Adrenalin	...	...	0.1 gram
Anhydrous sodium sulphite	...	...	0.2 "
Sodium chloride	...	...	0.7 "
Dilute hydrochloric acid	...	...	1.15 "
Distilled water, to produce	...	...	100 grams

Compound Calomel Ointment.—P. Blum and P. Boyer ("Bulletin Médical," September 21, 1927) recommend the following modification of Metchnikoff's calomel ointment:—

Mercury cyanide	...	...	0.1 gram
Thymol	...	...	1.75 grams
Calomel	...	...	25 "
Lanolin	...	...	50 "
Liquid paraffin	...	...	10 "
Soft paraffin	...	...	13.15 "

Solution of Novocaine and Adrenalin.—In its report on sterilisation and solutions for hypodermic injection, the tenth subcommittee of the French Codex suggests the inclusion, *inter alia*, in the next edition of the Codex of solutions of novocaine and adrenalin, of which the following 1 per cent. solution is an example:—

Novocaine	...	...	1 gram
Solution of adrenalin (1-1,000)	...	...	0.8 gram
Liquid sodium bisulphite	...	...	0.3 c.c.
Benzoic acid	...	...	0.2 gram
Physiological salt solution, to produce	...	...	100 c.c.

Water-Absorbing Paraffin.—F. Wratschko ("Pharmazeutische Zentralhalle," December 1, 1927) reports that as a result of a series of experiments he has succeeded in preparing a polymer of soft paraffin which is capable of absorbing half its weight of water. The process is as follows: 1,000 grams of soft paraffin and 50 grams of glycerin are placed in a vessel of thin aluminium and the mixture is rapidly heated to 280° C., by means of a powerful flame, whereupon it is immediately cooled to 100° C., by placing the container in cold water, and the glycerin poured off. The latter may be used again repeatedly for the same operation. On cooling, the resulting product is only a shade darker than the original substance, provided the procedure has been carried out with speed and prolonged heating has been avoided. The resulting product has been found to provide an excellent base for ointments.

Mixtura Magnesii Hydroxidi.—The following method of preparing magnesium hydroxide mixture is described in "Svensk Farmaceutisk Tidskrift," September 30, 1927:—

Dissolve 300 grams of magnesium sulphate in 4,000 grams of water, filter, and add 580 grams of solution of sodium hydroxide (17 per cent.) diluted with 4,000 grams of water. Wash the precipitate by decantation with water until the washings show no apparent alteration on the addition of $N/2$ barium nitrate. The moist precipitate of magnesium hydroxide is mixed with sufficient water to produce 900 grams. The amount of magnesium hydroxide is then determined by dissolving 5 grams of the suspension, previously well shaken, in 25 c.c. of $N/1$ hydrochloric acid and titration with $N/1$ sodium hydroxide—1 c.c. $N/1$ hydrochloric acid corresponding to 0.02917 gram magnesium hydroxide. The suspension is then diluted with sufficient water to contain 7 per cent. of magnesium hydroxide, and 0.15 per cent. of peppermint oil is added.

Aqueous Tincture of Wormwood.—Compound tincture of wormwood is a popular household remedy in Sweden, and since it is officially prepared with alcohol (62 per cent.), its increasing use of recent years has induced the Swedish Medical Board to assume that it is being extensively used on account of its alcoholic content as a stimulant. For this reason the Medical Board has issued an order to the effect that from January 1, 1928, when sold over the counter without a prescription, the following aqueous tincture of wormwood only may be supplied, and not the official preparation. This new aqueous tincture of wormwood is prepared as follows:—Dried unripe orange, in powder, 2 grams; holy thistle (*Carduus benedictus*), 2 grams; galangal, 2 grams; wormwood, 8 grams; boiling water, 75 grams. Set aside for twenty-four hours, then add 25 grams of alcohol (90 per cent.) and allow to macerate for five days. Strain, press the marc, mix the expressed and strained liquids, set aside for some time, and filter.

Dutch Formulas.—The Nederlandsche Maatschappij ter Bevoordering der Pharmacie has issued a formulary containing directions for the preparation of a number of non-official medicaments frequently prescribed by doctors, as well as other preparations sold over the counter, with the object of securing uniformity in their preparation by providing pharmacists with approved formulas, among which the following have been selected:—

BARIUM CONTRAST MEAL, FOR INTERNAL USE.—

Barium sulphate	...	...	75	grams
Cocoa powder	...	...	10	grams
Sugar, in powder	...	...	10	grams
Tragacanth	...	...	5	grams
Vanillin	...	...	0.1	gram

CAPSULE ANALGETICE.—

Phenacetin	...	...	0.3	gram
Caffine	...	...	0.1	gram
Dimethylamino antipyrin	...	...	0.15	gram
Quinine sulphate	...	...	0.135	gram
Magnesium oxide	...	...	0.04	gram

ELIXIR HYDRASTININI.—

Liquid extract of piscidia	...	...	65	grams
Liquid extract of viburnum	...	...	...	...
prunif.	...	...	130	grams
Glycerin	...	...	100	grams
Tincture of orange	...	...	100	grams
Spirit of cinnamon	...	...	200	grams
Syrup	400	grams
Hydrastinine hydrochloride	2	grams
Citric acid	2	grams
Water	46	grams

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LINIMENTUM CONTRA TUSSIM.—

Sesame oil	20	grams
Oil of cloves	10	grams
Oil of amber	10	grams
Extract of alkanna	0.01	gram

LOTIO SALICYLATA BORAXATA.—

Salicylic acid	1	gram
Borax	10	grams
Glycerin	100	grams
Water	1,000	grams

PASTA DENTIFRICIA CUM CHLORATE KALICO.—

Potassium chlorate, in fine powder	30	grams
Calcium carbonate	80	grams
Talc	50	grams
Sodium soap (made with cacao butter)	20	grams
Saccharin	0.05	gram
Glycerin (about)	50	grams
Water	30	grams
Oil of peppermint	7	grams
Oil of caraway	2	grams
Oil of anise	2	grams

PASTA DENTIFRICIA PEPSINATA.—

Calcium carbonate	1.5	gram
Phosphoric acid (25 p.c.)	11.74	grams

Set aside for 30 minutes, transfer the crystalline precipitate to a filter pump, and while moist mix with:

Calcium sulphate cryst.	22	grams
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Then add:

Pepsin	1.6	gram
Glycerin (about)	13	grams

Make a paste, adding 2 drops of oil of peppermint to 50 grams of paste.

SIRUPUS PHOSPHATIS MONONATRICI.—

Phosphoric acid (25 p.c.)	225.5	c.c.
Sodium bicarbonate	56	grams
Syrup	1,000	c.c.
Orange essence	8	c.c.
Water, to produce	2,000	c.c.

TABULE ACIDI ACETYLSALICYLICI COMPOSITE.—

Acetylsalicylic acid	6.5	grams
Quinine tannate	0.45	gram
Lithium salicylate	1.26	gram
Rice starch	0.75	gram
Magnesium peroxide (25 p.c.)	0.5	gram
Kaolin	0.54	gram

To make 20 tablets.

UNGUENTUM CONTRA TUSSIM.—

Diffuoro-diphenyl	5	grams
Wool fat	85	grams
Soft paraffin	10	grams

PHARMACEUTICAL CHEMISTRY

Ephedrine.—Ephedrine base, described as an alkaloid obtained from *Ephedra equisetina*, has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Non-Official Remedies. The following characters and tests are given in the "Journal of the American Medical Association," November 26, 1927:—

Ephedrine occurs as an unctuous, almost colourless solid that tends to crystallise as needles. The needles melt at 34.40° C., and the liquefied alkaloid boils above 200° C. The specific rotation in absolute alcohol (Note: must be no moisture by anhydrous copper sulphate test) $[\alpha]_D^{20}$ falls between -6° and -7.5°. It is soluble in alcohol, chloroform, ether and water, the solutions being strongly alkaline to litmus paper moistened with water. Dissolve 0.0005 gram of ephedrine in 1 c.c. of water and add 0.1 c.c. of copper sulphate solution (10 per cent.) followed by 1 c.c. of sodium hydroxide solution (20 per cent.); a reddish-purple colour develops. To this solution add 1 c.c. of ether, shake the mixture and compare with a tube made up similarly, but without using ether: the reddish-purple is partially extracted (apparently decolorised by the ether). Dissolve 0.05 gram of ephedrine in 10 c.c. of chloroform and allow to stand twelve hours, evaporate spontaneously: white crystals of ephedrine hydrochloride appear; wash with a little

chloroform, dry: the crystals melt between 214° and 220° C. Dissolve 0.05 gram of ephedrine in 30 to 40 c.c. of distilled water, add 1 c.c. of diluted nitric acid and 1 c.c. of silver nitrate solution: less turbidity results than in a control tube using 0.1 c.c. of fiftieth-normal hydrochloric acid (*limit of chloride*). Dissolve 0.05 gram of ephedrine in from 30 to 40 c.c. of distilled water, add 1 c.c. of diluted hydrochloric acid and 1 c.c. of barium chloride solution: no turbidity develops in ten minutes (*limit of sulphate*). Dissolve about 0.2 gram of ephedrine, accurately weighed, in 10 c.c. of ether in a previously tared beaker, add an excess of hydrogen chloride in ether, evaporate to dryness, dry to constant weight over calcium chloride, and weigh; dissolve the residue in distilled water and dilute with distilled water to 10 c.c.; observe the angular rotation at 20° C.: the specific

rotation in water $[\alpha]_D^{20}$ falls between -33° and -35.50°.

Dissolve about 0.2 gram, accurately weighed, in 10 c.c. of neutralised alcohol, add five drops of bromocresol green solution and an excess of tenth-normal hydrochloric acid, titrate the excess, using fiftieth-normal sodium hydroxide solution; the acid used in neutralising the ephedrine is equivalent to not less than 97 per cent., nor more than 100 per cent. of the ephedrine used. Place about 0.5 gram of ephedrine accurately weighed in a previously tared wide-mouthed weighing bottle in a desiccator and allow to stand over calcium chloride at room temperature for eighteen hours (the temperature should not go above 22° C.): it loses not more than 1.8 per cent. of its weight. Heat about 0.1 gram of ephedrine accurately weighed in a platinum dish until constant weight is obtained. The ash is less than 0.1 per cent.

BOTANY

Vitamin A and Greenness of Plants.—As a result of their investigations, M. Dye, O. C. Medlock, and J. W. Crist ("Journal of Biological Chemistry," July 1927) emphasise the possibility of some connection between the presence of chlorophyll or greenness in the lettuce leaf and the vitamin A content. The outside green leaves of head lettuce were far superior to the inside yellow leaves in furnishing vitamin A. Indoor leaf lettuce proved as beneficial as outdoor leaf lettuce in producing growth.

AGRICULTURAL CHEMISTRY

Toxicity Tests on Insecticides.—H. W. Walker and J. E. Mills ("Industrial and Engineering Chemistry," Vol. 19, No. 6, p. 703) report that over a thousand poisonous preparations have been tested during an investigation as to their relative toxicity to boll weevil and to the cotton plant. The results are of general interest as regards destruction of plant pests without damage to plant foliage by arsenical dusts and sprays, or substitutes therefor. Economic cost is also taken into account in the form of relative covering power of the toxic substance. Calcium arsenate was used as a standard of comparison, and the substances showing equal or greater toxicity are divided into compounds (relatively insoluble) causing little or no plant injury and (more soluble) poisons causing definite damage to plants. Only the first five substances in the lists below are regarded as offering commercial possibilities:—

Poisons toxic to weevil but causing definite plant injury:—

Arsenic trioxide	Phenyl arsenious oxide
Arsenic pentoxide	Diphenyl arsenious sulphide
Arsenic trisulphide	Methyl arsenious sulphide
Arsenic pentasulphide	Trimethyl arsine sulphide
London purple	Sodium methyl arsonate
Paris green	Copper fluoride
Copper arsenate	Sodium fluoride
Ferric arsenate	Strontium fluoride
Mercuric arsenate	Calcium cyanide
Sodium arsenate	Mercuric cyanide
Calcium arsenite	Sodium cyanide
Copper arsenite	Barium salicylate
Ferric arsenite	Magnesium salicylate
Lead arsenite	Barium benzoate
Magnesium arsenite (ASO ₃)	Calcium benzoate
Magnesium arsenite (ASO ₂)	Lead tetrachlyl
Mercuric arsenite	p-Dichlorobenzene
Sodium arsenite	Trichlorophenol
Chlorvinyl arsenious oxide	Methylene blue
Methyl arsenious oxide	Malachite green

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Poisons toxic to weevil without injuring cotton plants:—

*Sodium fluosilicate	Zinc arsenite
*Barium fluosilicate	Cadmium methyl arsonate
*Calcium arsenate (24% As_2O_3)	Barium methyl arsonate
*Barium fluoride	Lead methyl arsonate
*Cryolite	Magnesium methyl arsonate
Potassium fluosilicate	Calcium ethyl arsonate
Sodium ferrofluoride	Calcium phenyl arsonate
Barium arsenate	Lead benzyl arsonate
Magnesium arsenate	Magnesium phenyl arsonate
Zinc arsenate	Lead fluoride
Lead arsenate	Barium fluochloride

* Economic

It was found that a light sodium fluosilicate could be produced on drying the gel formed by passing silicon tetrafluoride into a solution of sodium carbonate (Gehauf and Walker, U.S. Patent 1,617,708). A composition of the same physical characteristics is obtained by treating a mixture of sodium silicate and sodium carbonate with aqueous fluosilicic acid (35 per cent. of H_2SiF_6). The product contains about 80 per cent. of Na_2SiF_6 and 20 per cent. of SiO_2 . It has a specific gravity of 0.30 to 0.36, and is as effective as calcium arsenate on a pound per pound basis. It is pointed out that the poisoning of weevils by dusts is more or less accidental (through the insect picking up of particles with its moist snout). This emphasises the need for uniform surface distribution and that the dust must not adhere so tightly that it cannot be removed by the weevil. The commercial calcium arsenates appeared to possess this adjustment to a very marked degree. Other findings of importance are that freshly dusted calcium arsenate is more toxic than calcium arsenate dust five days old, but both sodium fluosilicate and barium fluosilicate did not exhibit this diminution in toxicity. Specially prepared calcium arsenate (containing only 24 per cent. As_2O_3) was equally as effective as commercial calcium arsenate of over 40 per cent. strength. This is due to the arsenic being contained mainly in the coating of each particle. Calcium arsenate of any desired arsenic content can be prepared by heating the requisite amount of arsenious oxide with precipitated chalk in the presence of air at a temperature of about 650° C. for about an hour or less. Barium fluoride and cryolite require an increased poundage per acre over calcium arsenate, and no economical means has yet been found to overcome this physical disadvantage. Tests with poisonous gases show little hope as regards poisoning boll weevil in field use. Preliminary tests indicate that molasses mixture of calcium arsenate or of fluosilicates are as toxic to weevils as calcium arsenate dust. Definite weevil control without plant injury was obtained with both special and commercial arsenates of calcium, but unfavorable conditions prevented determination of relative effectiveness. The amount of arsenic required to kill a boll weevil is given as probably less than 0.00013 mgm., and the average arsenic content of weevils killed by calcium arsenate is 0.002 mgm. No substance was found which attracted or repelled boll weevils, or which irritated them sufficiently to make them fly. It is suggested that, when weevil infestation has been reduced to below twenty weevils per acre, the fight should be continued both by local poisoning and picking up of fallen punctured squares. Advanced cotton and badly infested cotton should receive special attention to prevent multiplication of weevils with later infestation of the entire crop.

ANALYTICAL CHEMISTRY

Assay of Ephedrine.—C. T. Feng and B. T. Read ("Journal of the American Pharmaceutical Association," November 1927) show that ammonia in large excess is needed to set free the alkaloids present in Chinese "Ma Huang," which in commerce consists of various species of *Ephedra*. When fully extracted the amount of total alkaloids may be in excess of 1 per cent. The fact that ammonia in limited amount does not give the pure alkaloid accounts for the small yields by some of the previous investigators and the variations in the melting-points of alkaloids thus obtained. Small doses (1 mgm.) introduced into the femoral of a

luminalised dog (6.2 kilos. weight) at hourly intervals gave blood-pressure effects sufficiently accurate for assay purposes. This method was used to confirm chemical assays. On the other hand, repetitions of doses at intervals of a few minutes is liable to embarrass the heart and lead to negative results.

Vinylethyl Ether in Commercial Ethyl Ether.—Dr. H. King, of the National Institute for Medical Research ("Nature," December 10, 1927), points out that vinyl-ethyl ether has not hitherto been recorded as being present in ether of commerce. The products of six manufacturers were found to absorb bromine to different extents, viz.:—A, 0.6; B, 2.5; C, 7.5; D, 11.6; E, 13.6; F, 15.9. The tests were made in the dark, and the figures are the amount (in cc.) of decinormal bromine solution absorbed by 100 cc. of ether in one hour, which in the absence of aldehydes gives a measure of the degree of unsaturation. After bromination of 2,250 cc. of ether C, the major constituent of the bromination products was $\alpha\beta$ -dibromovinylethyl ether, one gram of which was obtained. This must have been produced from vinylethyl ether ($CH_2=CH.O.CH_2.CH_3$) present in the original product. This substance was present in freshly prepared ether which had never been exposed to light, whilst a small amount was present in an old sample of solvent ether rich in peroxides. The question of whether vinylethyl ether is the first product of the action of light is being looked into, and the other bromination products are being examined.

Testing Anæsthetic Ethers.—E. Mallinckrodt, jr. ("Journal of the American Chemical Society," Vol. 49, No. 10, p. 2655) demonstrates that solid potassium hydroxide is preferable to caustic potash solution in testing the "purity" of anæsthetic ether. The chief defect of the test is that allowances must be made for the disturbing influences caused by the presence of common impurities such as alcohol, peroxides, and water. As a means of detecting aldehyde it is unreliable in the presence of more than very small traces of peroxides, and solid potash will not indicate aldehyde present in the complete absence of water. Before applying the test the ether should be shaken with mercury to liberate the aldehyde combined with organic peroxides. (This tarnish test for organic peroxides is very sensitive, but, unfortunately, is not quantitative.) The appearance of a turbidity, remaining undiminished for several hours, points to an alcoholic ether containing considerable peroxides. Alcohol itself produces a turbidity which is not easy to distinguish from that due to peroxides. Contrary to prevailing opinion, the appearance of a turbidity is in no way indicative of the presence of aldehyde, being inconclusive unless substantiated by other tests. The potash test will not indicate aldehyde in the absence of water, but exposure to moist air overcomes this difficulty. The addition of three drops of water to 20 c.c. of ether delays discoloration with alcohol for a period sufficient for the aldehyde colour to attain its maximum intensity. It is easy to detect 0.01 per cent. of aldehyde in pure ether, but it requires the above addition of water and experience to detect this amount in alcoholic ether. In the absence of any information three tests with freshly broken lumps of potassium hydroxide (pea size) should be made, viz., with fresh caustic, with caustic exposed to moist air, and by adding water to the ether itself. A pungent peppery odour is characteristic of peroxides when the residue of one or two c.c. from 30 c.c. of ether (evaporated on a steam bath) is poured drop by drop on to the centre of a 4-in. square of filter paper.

BIOLOGICAL CHEMISTRY

Methods for the Biological Assay of Aconitine are compared by M. G. Jauregui ("Journal of the American Pharmaceutical Association," November 1927) who concludes that the U.S. Pharmacopœia (guinea pig) method gives uniform results and offers no technical difficulties if carefully carried out. The lethal subcutaneous dose thus obtained for guinea pigs agrees fairly closely with that for cats and dogs. Intravenous injections on anæsthetised animals yielded unreliable results, but these

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were in proportion if respiratory failure was prevented by artificial respiration. It is considered that intravenous injection methods involve too complicated a technique for practical application.

The Mechanism of Enzyme Action is discussed by J. H. Quastel and W. R. Wooldridge ("Biochemical Journal," Vol. XXI, No. 5). They regard enzymes as active centres at biological surfaces, forming part of a colloidal aggregate in the cell. On this view, enzymes are part of, and cannot be dissociated from, the architectural units involved in the living structure. The specificity of enzymic action may be due to the localisation of a definite centre of activation, whilst the distinction between "soluble" and "insoluble" enzymes is simply one of degree. The aggregate, taken as a whole, may contain other active centres and have a much wider range of specificity than if the residue were inert (or of small dimensions). Enzymes and cellular structure are thus inseparably connected and there is no need to postulate the secretion of a large number of specific enzymes. This leads to a simplification of enzyme production and action as points at which there is a looseness of structure (i.e., stray fields balanced by surface forces).

Vitamin B Value of Foodstuffs.—R. H. A. Plimmer and his co-workers ("Biochemical Journal," Vol. XXI, No. 5) have examined the commoner cereal products for their comparative content of vitamin B with the following results:—

RELATIVE VALUES OF VITAMIN B IN CEREALS
(As compared with dried yeast = 100)

Wheat germ ...	66	Maize ...	7-8
Bran ...	12-13	Maize germ ...	very little
Middlings ...	12-13	Barley ...	7-8
Whole wheat ...	8-10	Buckwheat ...	5-6
Rye ...	9	Oatmeal ...	4
Millet ...	8	White rice ...	0
Dari ...	8	White flour ...	0

The corresponding value for marmite is 40-50 and for bakers' yeast 33-40. The percentage of cereal that must be contained in a diet, otherwise devoid of vitamin B, is obtained by dividing the above values by 400. These figures are for pigeons. Alternatively, the amount of cereal mixture should total 4 (e.g., 40 per cent. whole wheat, 3.2; 10 per cent. dari, 0.8; 50 per cent. white rice, 0.0; total, 4.0). Man, with a figure of 3, comes between the pigeon (4) and rat (2) in regard to vitamin B requirement.

Fats Destructive to Vitamin E.—H. M. Evans and G. O. Burr ("Journal of the American Medical Association," Vol. 89, p. 1587) discuss the nature of the destructive effect of certain fats and their fractions on the antisterility vitamin in wheat germ and in wheat germ oil. They point out that sterility with simplified diets is more regularly produced when high amounts of lard are employed. The raising of the lard quota from 8 to 22 per cent.—the other constituents being casein and corn-starch—greatly increased the sterility of first breedings in an extensive series of experiments. More striking, perhaps, was the similar effect of adding 10 per cent. of lard to a diet possessing 5 per cent. of butter—a well-known source of E—and in watching the change from high initial fertility (83 per cent.) with the butter alone to high sterility (92 per cent.) when the butter remained but lard was added. One of the explanations of this sterility-producing effect of the lard addition was that the total fat (15 per cent.) was now too high; but this is untenable, for E-containing fats like butter can easily constitute one fourth by weight of a ration and sterility never results. Evidently, then, lard has peculiar effects and even exhibits active opposition to a known source of E like butter. This led the authors to mix lard with another known and very high source of E—wheat germ—and to devise what we consider an ideally controlled experiment to demonstrate this antagonism. Only animals known to be sterile from lack of E were selected and an attempt was made to see whether contact with lard would clearly destroy the curative action of a well standardised minimal effective

dose of wheat germ. This, they assert, is always the case. The experiments are described in detail, and it was found that both oleic acid and lard on becoming rancid increase in power to render vitamin E ineffective. The development of the antivitamin in fats therefore is associated with rancidity. It was shown that much of the antivitamin in commercial oleic acid can be concentrated in the unsaponified fraction. The authors do not assume actual specificity of action of the antivitamin substance or substances, but are investigating the extent to which they also act against the effectiveness of the other fat soluble vitamins A and D.

The Interpretation of Biological Assays.—P. S. Pittenger ("Journal of the American Pharmaceutical Association," Vol. XVI, No. 8) deals with the factors underlying the interpretation of biological assays and the need for practical experience in applying the results in adjustment of the strength of the final product. Whether or not a preparation is given the theoretical dilution depends upon its permanency, percentage over-strength and age. Preparations of *Cannabis Indica* are practically permanent, and it is safe to dilute to the limit and to assume that standard strength will be maintained. Digitalis, ergot and aconite assays must not be diluted too closely on account of deterioration. Some digitalis tinctures retain practically full activity for a year, but others lose 15 to 30 per cent. within three months. Accordingly, in most cases digitalis preparations should be not less than 110 to 115 per cent. of standard. The most rapid deterioration occurs in the case of digitalis within the first three months. Ergot is almost permanent after six months' ageing, and the dilution, therefore, should depend upon age at time of assay. The U.S. Pharmacopœia requires the comparison standard for ergot to be aged for six months prior to assay. Aconite preparations deteriorate rapidly. These may be almost inert within a year, but are much more permanent if 2 per cent. of acetic acid is added to the percolating menstruum. Aconite preparations should not be diluted to less than 110 to 120 per cent. of the average standard. High dilutions do not always test to intended strength, and are liable to increased rate of deterioration (e.g., ergot). With preparations assaying within 100 to 150 per cent. of standard, the diluted preparation can be usually depended upon to assay in direct proportion to the dilution. In cases where the strength runs as high as 175 to 250 per cent., the safest procedure is to give only about three-quarters' dilution and then re-assay, the increased yield paying several times over for cost of assay. Experience is needed in judging the best method of fortifying under-strength preparations. Whereas with a sub-standard digitalis it may be satisfactory to use up to five times the usual formula quantities, this is not safe with ergot on account of the possibility of accumulating toxic decomposition products. Again, a slightly under-strength preparation can usually be strengthened by reducing a portion *in vacuo* when an over-strength supply is not available for adjustment. Aconite preparations, however, cannot be treated in this manner, as even this slight heating splits the aconitine into inert decomposition products. There are also cases in which it is not good policy to dilute over-strong products with under-strength preparations. In the case of pituitary extract, it is usually more profitable to discard a batch showing rapid deterioration, as if this is used for dilution it has a tendency to initiate quick loss of strength in the mixed product. Re-assays are required every three months with preparations of ergot, aconite and digitalis, and also after all concentrations and high dilutions. Finally, stress is laid upon supplying to the assayer all possible information in cases where a manufacturer does not standardise his own preparations, as only thereby is it possible to obtain the benefit of laboratory experience.

INDUSTRIAL CHEMISTRY

The Composition of Bleaching Powder has been investigated by E. A. O'Connor ("Journal of the Chemical Society," November 1927). A fresh sample containing about 35 per cent. of available chlorine is

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roughly of the composition: $2\text{Ca}(\text{ClO})_2 + 2\text{CaCl}_2 + 3\text{Ca}(\text{OH})_2 + 4\text{H}_2\text{O}$. No compound of calcium hypochlorite and chloride exists at 0°C ., and this is probably true at higher temperatures. The conclusion reached is that fresh bleaching powder is simply a mixture of calcium hydroxide with more or less hydrated hypochlorite and chloride.

Artificial Camphor.—Mulany and Watson ("Quarterly Journal of the Indian Chemical Society," 3 (1926), 253) describe a new method of preparation of camphor from turpentine. Two parts of salicylic acid and one part of pinene are heated together for seventeen hours at 110° and then for eleven hours at 150° . The mixture is neutralised with soda and the esters fractionally distilled in vacuo. The borneol salicylate is hydrolysed by caustic potash, and the borneol thus obtained (about 44 per cent. of the pinene used) is converted into camphor by oxidation with nitric acid. The yield is 50 per cent. of the theoretical.

Sources of Vitamins A and D.—O. Rosenheim and T. A. Webster direct attention ("Nature," September 24, 1927) to easily accessible sources of vitamins A and D. They state that the liver fats of herbivorous mammals would appear to be an ideal source of vitamin A. The liver fats of sheep and oxen contains on an average ten times the amount of vitamin A as a good Newfoundland cod-liver oil, and these fats may be said to be 200 to 1,000 times as potent as butter. It is suggested that the isolation of the fats would not be necessary on a large scale, but that the vitamin A could be extracted direct from the tissue by a neutral oil (for mixing with margarine). Contrary to expectation, the liver fats were practically devoid of vitamin D, but it is added that there is no need to search for a natural source of this vitamin as it can be made by irradiating ergosterol. A study of the best conditions for formation in yeast should make a practically unlimited supply of ergosterol available.

Commercial Chlorophyll sold for colouring purposes is copper phaeophytin, according to F. M. Schertz, of the U.S. Bureau of Plant Industry ("Industrial and Engineering Chemistry," Vol. 19, No. 10). Chlorophyll as formed in plants is a magnesium compound, which, with acid, is changed into the brownish hydrogen derivative phaeophytin. Fine green copper or zinc phaeophytins are obtained by replacing hydrogen with copper or zinc. The copper compound is the most stable, and the chlorophyll of commerce is, strictly speaking, "copper phaeophytin," and not the natural magnesium derivative, as many are led to suppose. Water-soluble chlorophyll is a soapy mass containing the copper chlorophyllin salt. Alcohol- and oil-soluble chlorophyll consists of copper phaeophytin mixed with fat and wax. Copper phaeophytin is stable in oil solution even when exposed to light. In pharmaceutical practice it is used for colouring ointments, pemades and (paraffin) hair oils. Other uses are for tinting soaps, waxes, stearin candles, and sometimes food products. Phaeophytin in combination with iron has a higher blood-forming capacity than iron alone when given to normal or anæmic rabbits. The bright green copper phaeophytin, it is pointed out, would find a much wider use in pharmaceutical preparations if its merits were better known and a reliable product available. Nettle leaves are probably the origin of the chlorophyll of commerce.

Mothproofing by Means of Cinchona Alkaloids.—L. E. Jackson and Helen E. Wassell ("Industrial and Engineering Chemistry," Vol. 19, No. 10) find that cinchona alkaloids, or their derivatives, are the only moth-repelling substances sufficiently effective for commercial application. Their use as insectifuges has been a subject for industrial research extending over four years and constitutes U.S. Patent 1,615,843 (February 1, 1927). A long list of chemicals were selected for test and only cinchona alkaloids were found to satisfy the criteria of excellence laid down for moth-repellants, viz.:—(1) Absence of odour. (2) Adherence to treated fibre. (3) Invisibility. (4) Not removable by dusting or brushing. (5) Do not damage fibres. (6) Soluble in cheap organic solvents, such as petroleum naphtha, as well as in water. (7) Non-toxic. (8) Repels moths.

(9) Economic cost. The original test pieces of wool treated with an alcoholic solution of quinidine sulphate have withstood moth attack under most favourable conditions, including incubation after inoculation with eggs and living larvæ of moths. The cinchona alkaloids attach themselves to the fibre-like dyestuffs, and their moth-proofing characteristics is probably due to a combination of properties, including salt formation, bitterness, astringency, germicidal action and intestinal irritation. Aloin is bitter, but not moth-repellant, whilst alum is astringent, but useless in protecting clothes against the ravages of moths. Dry cleaners' naphtha with a distillation range of 240° to 400°F . is the most suitable organic solvent, giving good penetration by spraying or immersion, whilst it evaporates in a short time and the fire hazard is comparable with that of kerosene. Practical tests consisted in treating clothing, rugs, and furniture with cinchona alkaloid compounds dissolved in water, dry cleaners' petroleum naphtha, or carbon tetrachloride. Clothes-moths were exterminated and insects did not re-enter treated fabrics. It was concluded that cinchona alkaloids or their compounds in either water or petroleum naphtha solution are commercially suitable for treating materials by immersion in or by spraying with the solution. The process has been applied successfully in the dry-cleaning plants, the treated articles being guaranteed as mothproof. Not a single complaint has been received so far. An American gallon of solution is sufficient to protect 4,000 lb. of wool, fur, or feathers. The only safeguard required is after dry cleaning or laundering as this removes the moth-repellant alkaloids, so that re-mothproofing is essential. Brushing, dusting, shaking and such ordinary usage is apparently without effect upon the protection against moths.

PURE CHEMISTRY AND PHYSICS

Solid Helium.—This is a homogeneous transparent mass, states Professor Keesom ("Journal of the Franklin Institute," September 1927), and that it is crystalline would seem to follow from its sharply defined melting-point curve. Solidification was brought about by compression in a glass tube with an iron rod as stirrer (operated by electro-magnet), the surrounding bath being at 1.9°Kelvin .

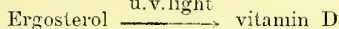
Hydrolysis in Soap Solutions.—J. W. McBain and R. Buckingham ("Journal of the Chemical Society," November 1927) report that, contrary to the usual opinions, no soap solution contains more than the merest trace of uncombined fatty acid, and even this is in solution and not emulsified. The soap solution is actually unsaturated in respect of fatty acid despite the sparing solubility of the higher fatty acids. Practically all of the fatty acid corresponding to the hydrolysis alkalinity is locked up in combination as (insoluble) acid soap. Soap solutions are excellent buffers, as a large change in soap concentration, addition of acid, or even a small amount of alkali, and variation of the amount of organic solvent with which the solution is shaken, all effect only a small change in the concentration of hydroxyl ion.

Active Form of Oxygen.—F. R. Bichowsky and L. C. Copeland ("Nature," November 19, 1927) state: An active form of oxygen, presumably monatomic, has been produced by passing oxygen gas saturated with water vapour through a discharge tube. The oxygen was generated electrolytically and subjected to a discharge of about 1,000 volts at a gas pressure of 0.4 mm. of mercury. The gas was removed from the discharge tube through a side arm, and its density measured by passing it through a small hole which was located at a distance of 25 cm. from the discharge tube. Pressure measurements at the small hole indicated a decrease in the density of the gas corresponding to about 8 per cent. monatomic oxygen. A platinum calorimeter mounted over the hole showed a decided rise in temperature during the passage of the discharge. These effects were continuous throughout one three-hour experiment. This work is being continued with the object of determining the most favourable conditions of studying the chemical properties of this gas.

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A Simple Automatic Syphon is described by D. C. Harrison ("Journal of the Chemical Society," November 1927). The syphon is made from glass tubing not exceeding 5 mm. in diameter. Capillary tubes are drawn from the same tubing of different sizes from $\frac{1}{4}$ mm. to 1 mm. in diameter. Eight or so of these capillaries (20 cm. long) are placed inside the wider glass tube near one end, which is then bent to form a syphon (avoiding heating too strongly), with the capillaries inside the bend and projecting some 7 cm. into the shorter limb of the syphon. The longer limb is next warmed and molten paraffin wax drawn up to within 4 cm. of the ends of the capillaries. The wax is allowed to run down and the excess is shaken out, so that, when cool, a thin, even layer remains inside the longer limb. The wax serves to retain drops rising through the capillaries by surface tension until these within a few seconds accumulate into a column heavy enough to draw the liquid over the bend, when free flow occurs as the capillaries occupy only a small part of the tube.

Absorption Bands of Ergosterol and Vitamin D.—I. M. Heilbron, E. D. Kamm and R. A. Morton ("Nature," October 29, 1927) point out that as the reaction



proceeds, the characteristic selective absorption in the region 260-320 μ diminishes in intensity at a uniform rate. At the same time a new selective absorption gradually makes its appearance with a maximum at 247 μ (ranging 230-270 μ). Further irradiation brings about the disappearance of the 247 μ band. Animal tests indicate great antirachitic potency of preparations exhibiting this band. It is concluded:—(a) A satisfactory yield of vitamin D requires prolonged irradiation as the pro-vitamin bands disappear slowly; (b) that the mercury vapour lamp is unsuitable for this photo-chemical reaction, because it emits radiations capable of decomposing vitamin D. It is suggested that only rays longer than 270 μ should be used. Though Rosenheim and Webster adversely criticise the above conclusions and fear that the 247 μ line must be rejected as belonging to vitamin D, the above spectroscopic work is held to fore-shadow and confirm the results in the "Lancet" of September 17, 1927.

DENTISTRY

Oral Sepsis and Carbohydrate Tolerance.—W. H. Evans, D. Riding and E. E. Glynn ("British Dental Journal," September 15, 1927) state that evidence has been produced, from a study of eleven cases, that oral sepsis in non-diabetic patients was usually associated with slight but definite diminution in carbohydrate tolerance. This diminution was greater in the three cases of acute alveolar abscess than in the four of pyorrhœa. Subsequent dental treatment of five of these seven cases, which cured or greatly improved the oral disease, was associated with an increase in tolerance, so that it practically equalled the tolerance of the normal control. This improvement from treatment is evidence that the oral sepsis caused the diminution in carbohydrate tolerance. Such a depression might, if prolonged, perhaps lead to glycosuria or even to diabetes.

Sodium Sulphide in Pyorrhœa.—S. C. Miller and S. Sorrin ("Dental Cosmos," November 1927) suggest the use of sodium sulphide as an adjunct to the usual treatment of pyorrhœa. The formula for the solution is:—

Sodium sulphide	...	...	70 gr.
Sodium carbonate	...	...	20 gr.
Water	...	...	1 oz.

Following scaling, curetting and so forth, the above solution is used. Because this agent acts slowly, a carrier of absorbent cotton or absorbent points is employed to introduce and maintain it in position. These are immersed in the solution and carried down to the bottom of the pocket in line with the long axis of the tooth, with a pointed instrument, aided by a foil carrier and curets. The points remain in position for about ten minutes, and after that time they are removed. The

pocket is again gently curetted, endeavouring to remove all detached epithelium which has been loosened by the sodium sulphide. Bleeding should always be induced at this point. The gingival tissue is now pressed firmly, but not too vigorously, against the tooth, and held in apposition with it for two minutes. The pocket is then left undisturbed for a week or more.

Hexylresorcinol in Oral Antisepsis.—W. A. Feirer and V. Leonard ("Dental Cosmos," September 1927) state that hexylresorcinol, as incorporated in a solution designated for convenience Solution S. T. 37, meets the qualifications necessary to an effective oral antiseptic in that it is chemically stable, non-toxic, non-irritating, rapidly bactericidal (fifteen seconds) in high dilution (1:1000 and higher), is unaffected by organic matter under these conditions and is highly penetrating, due to its powerful surface tension reductant properties. Also it is free from objectionable taste and does not stain. Solution S. T. 37, consisting of 30 per cent. glycerin and 70 per cent. water in which is dissolved one milligram of crystalline hexylresorcinol per c.c. (1:1000) and which possesses a surface tension of 37 dynes per centimetre, appears to be the optimum solution for clinical use in the disinfection of tissue surfaces. Solution S. T. 37 completely destroys all the usual pathogenic bacteria in less than fifteen seconds at body temperature. Spirochetes, amœbæ and flagellates disintegrate and disappear completely in less than five seconds on contact with this solution at body temperature. In spite of the difficulties involved, application of Solution S. T. 37 results in practically complete disinfection of the gum margin in five minutes.

Plaster of Paris as Impression Material.—W. H. Sodeau and C. S. Gilson ("British Dental Journal," September 15, 1927), following research work on behalf of the Dental Investigation Committee, have reached the following conclusions, among others: Dental plaster of Paris consists mainly of calcium sulphate hemihydrate, $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$, but contains various forms of anhydrite, CaSO_4 , in addition to the dihydrate or gypsum. The dental plasters examined gave a linear expansion of about 0.3 per cent. when mixed with water in the proportion of 100 gm. to 60 c.c. without prolonged stirring, but this is greatly increased if stirring is continued after the mixture has appreciably stiffened. Addition of gypsum produces similar effects. Expansion can be reduced to a negligible amount by the use of a potassium salt as the accelerator, an alkaline substance being employed if necessary to prevent excessively rapid setting. Efficient anti-expansion accelerators can be made with either the sulphate, chloride or nitrate of potassium, using borax as controlling retarder. Potassium tartrate or Rochelle salt (KNa tartrate) can be used without a retarder in the case of slow-setting plaster. Borax, sodium carbonate, sodium bicarbonate and potassium carbonate have given good results as retarders in conjunction with potassium sulphate, but borax is preferred. Neither sodium sulphate nor ammonium sulphate is an efficient substitute for potassium sulphate. Alum apparently owes its power of acceleration and moderate reduction of expansion to its potassium sulphate content, aluminium sulphate being relatively inert. Sodium chloride is inferior to alum, as it does not reduce expansion unless used as very strong solution, e.g., 25 per cent., which retards the setting and gives a very friable mass covered with crystals. Rochelle salt gave a reduction of expansion corresponding to its potassium tartrate content. Its accelerating power, in the concentrations tried, was much less than would be expected from the results with the tartrates of sodium and potassium used separately, and insufficient for use with slow-setting dental plasters. It is greatly affected by the addition of borax, relatively small quantities of which cause great retardation and may even inhibit the hydration for some hours. Sodium tartrate gave but little reduction of expansion. Potassium tartrate is more effective than Rochelle salt, but appears to have no advantage over potassium sulphate. All the above accelerators effect a great reduction in that portion of the expansion which takes place after the

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cessation of active hydration, i.e., after a period usually less than half an hour. It is convenient to add to the accelerating solution an appropriate dyestuff, preferably one forming an insoluble lake with calcium salts. Of those tried, alizarin S. (sodium alizarin sulphate) gave the best results. The recommended anti-expansion accelerator solutions are made up with 4 per cent. potassium sulphate, 0.04 per cent. alizarin S. and amounts of borax varying between 0.4 and 1 per cent., adjusted to give a convenient setting time with the particular plaster employed. With these solutions the linear expansion is reduced to the order of 0.06 per cent. Prolonged stirring usually tends to diminish rather than augment this. The residual expansion appears to be greatest in those plasters which are relatively rich in slowly hydrating constituents.

ESSENTIAL OILS

Caucasian Bay Leaf Oil.—Rutowski and Semljanskaja, in a recent communication to the Chemical and Pharmaceutical Scientific Institute of Moscow, describe the essential oil of bay leaves, from the plant cultivated in the Crimea and Caucasus. The samples were examined and found to have the following characters:—

Yield per cent.	Sp. gr.	Rot.	Ref. index	Yield per cent.	Sp. gr.	Rot.	Ref. index
1 0.51	0.915	-23°	—	6 0.92	0.917	-20°	1.4690
2 0.25	0.914	-16°	1.4705	7 1.33	0.921	-19°	1.4722
3 0.56	0.933	-13°	1.4682	8 1.11	0.914	-19°	1.4685
4 1.18	0.913	-18°	1.4640	9 0.38	0.916	-14°	1.4722
5 —	0.918	-16°	1.4684	10 —	0.916	-23°	—

The highest percentage of phenols present was about six, but cineol was present to the extent of about 50 per cent. Both *alpha*- and *beta*-pinene were present.

Oil of *Salvia sclarea*.—A. Jermstad ("Pharmaceutica Acta Helvetica," October 29, 1927) has investigated the properties of the concrete oil obtained from *Salvia sclarea* Linn., and publishes the following physical constants: Specific gravity, 0.9325 at 15°; melting point, 44–85° C.; solidification point, 35–36° C.; optical rotation, -5° 44' at 15.8° C., and -3° 40' at 18° C.; specific rotation, -4° 16' at 15.6° C., and -4° 12' at 16° C.; refractive index, 1.5038 at 20° C.; acid value 4.81; saponification value, 49.50; ester value, 44.49; saponification value (after acetylation), 81.60; refractive index (after acetylation), 1.49623; non-volatile constituents, 73.79 per cent. The constituents of the oil are sclareol, and a thick liquid of the formula $C_{24}H_{40}O_2$ or $C_{25}H_{40}O_2$, probably with sesquiterpene alcohol, exhibiting the following characters: boiling point, 169–178° C.; specific rotation at 20° C.) +24° 47'; specific gravity (at 15° C.), 0.9841; refractive index at 20° C., 1.51585. Other constituents are: linallyl-acetate; linallyl, a yellowish-green liquid, which is probably an ethyl ester of an unsaturated acid of the series $C_nH_{2n-2}O_2$; free acetic acid; traces of an unsaturated acid of the series $C_nH_{2n-2}O_2$ or $C_nH_{2n-4}O_2$; and traces of a volatile phenol.

Sclareol.—A. Jermstad ("Pharmaceutica Acta Helvetica," October 29, 1927) has examined the properties of sclareol, a new crystalline body, probably an alcohol, present in the concrete oil of *Salvia sclarea*, Linn. The properties are given as follows: Melting point, 104–105° C.; optical rotation, -6° 12' at 20° C. It possesses two double links, but yields no bromides. Its reactions are somewhat similar to those of cholesterol; hydroxyl groups appear to be present in the molecule; on the other hand, methoxyl, ethoxyl and carbonyl groups are absent. It does not yield a picrate nor a methane, and is not attacked by fused potassium hydroxide. Sclareol is insoluble in water, but is soluble in most of the organic solvents. Its formula is $C_{34}H_{56}O_2$; molecular weight, 518; boiling point, 182° C. On oxidation with potassium permanganate in acetone solution it yields a crystalline body of the formula $C_{34}H_{54}O_4$, melting at 97° C., which is apparently unstable, since it rapidly becomes a solid mass, and an acid, which can be crystallised melting at 150.5° C., corresponding to the formula $C_{34}H_{54}O_4 + \frac{1}{2} C_2H_4$. The acid, to which the name of sclareol acid has been given,

is soluble in alcohol, ether, hot benzene, chloroform and glacial acetic acid, but is practically insoluble in petroleum ether and in water. A saturated solution of sclareol acid on cooling yields a gelatinous mass exhibiting a blue fluorescence.

Oil of *Siler trilobum*.—Rutowski and Gussewa, in a communication from the State Scientific Department, Moscow, publish the results of their work on this Crimean essential oil. The plant was first distilled in 1924 by Kondratski, who obtained a yield of 0.7 to 0.9 per cent. Four oils examined had the following characters:—

	(1)	(2)	(3)	(4)
Yield, per cent.	0.7–0.9	0.35	3.27	3.2
Specific gravity, at 20°	0.9217	0.950	0.888	0.909
Rotation ..	+120.7°	+109.8°	+131.6°	-58°
Ref. index ..	1.494	1.504	1.486	1.491
Acid No. ..	1.9	5.1	1.0	1.0
Ester No. ..	51	42	41.6	37
.. (acetylated)	98.5	105	59.3	59.7
Aldehydes, per cent.	—	60	40	45

Limonene was found present, but phellandrene (previously reported as present) could not be detected, and pinene could not be identified with certainty. An aldehyde was separated which had the following characters:—Specific gravity, 0.933 at 20°; optical rotation, +126°; and refractive index, 1.5085. This is α -perillic aldehyde which required further purification, when it was identified by means of its semi-carbazone melting at 197°, and its oxime melting at 102°. Azulene was also probably present.

Oil of *Cachrys alpina*.—Rutowski and Winogradowa, in a communication from the State Chemical and Pharmaceutical Institute of Moscow, recently recorded the results of their examination of this umbelliferous essential oil. The plant grows wild in the Crimea and yields from 0.15 per cent. to 1.09 per cent. of essential oil, the lower yield from the stalks, the latter from the flowers. The dry leaves yield about 1 per cent. of oil. A distillation made at the end of June, however, yielded as much as 2.7 per cent. on the dry material. The oil had the following characters:—Specific gravity at 20° = 0.8456; optical rotation = +4.04°; refractive index, 1.4868; acid value = 0.26; ester value = 3.9; ester value after acetylation, 15.23. The oil was fractionated with the following results:—

Fraction	Pressure	Boiling point	Per cent.	Sp. gr.	Opt. rotn.	Ref. index
1	760mm.	164–170°	2	0.8483	+ 22.8°	1.4795
2	"	170–180°	7	0.8469	+ 9.06°	1.4885
3a	"	180–184°	17	0.8430	+ 4.11°	1.4935
3	8mm.	65–65°	50	0.8430	+ 3.02°	1.4880
4	"	65–70°	5.5	0.8583	+ 1.2°	1.4900
5	"	70–100°	1	0.8917	+ 1.0°	1.4950
6	"	100–135°	3	0.9470	+ 4.05°	1.4985
Residue	"	—	2	—	—	—

In the first fraction α -pinene was detected. Limonene and, probably, terpinolene, were present in the next two fractions. A small quantity of an alcohol, not identified, is present, but no ketones nor aldehydes. Two other samples of the oil had the following characters:—

Fraction	Sp. gr.	Opt. rotn.	Ref. index	Ester value	Acetyl ester value
I	0.8618	+4.16°	1.4880	11.88	29.87
II	0.8671	+6.64°	1.4972	4.56	67.62

Oil of *Eucalyptus Bakeri* (Maiden).—A. R. Penfold, of the Technological Museum, Sydney, read a paper recently before the Royal Society of New South Wales on the above oil. *E. Bakeri* is a large shrub or

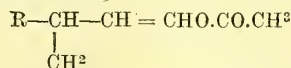
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pendulous willow-like tree about 30 to 50 ft. high, and known locally as "the malee box." The leaves are very narrow, and the plant is found from Northern New South Wales to Central Queensland. The oil yield was 2 per cent. on air-dried material, and 1 per cent. on freshly cut leaves. The oil in each case was of a bright reddish-yellow colour, and the main constituents identified were cineol (70.77 per cent.), cymene, and the aromatic aldehydes (cuminal, phellandral and cryptal), which are identical with those present in *E. polybractea* and *E. cneorifolia*. Two other new constituents were also identified, phloracetophenonedimethyl ether and the esters (isobutyric, isovaleric and formic) of the alcohols corresponding to the aromatic aldehydes, cuminal and phellandral. The oils examined had the following characters:—

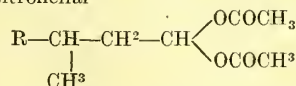
Sp. gr.	Opt. rotn.	Refr. index	Sol. in 70% alcohol	Ester No. 1½ hrs. hot	Ester No. after acetylation	Cineol (Phos. acid method)
0.9335	-0.7°	1.4633	1 vol.	20.5	38.5	73%
0.9257	+1°	1.4641	"	18.6	39.3	70-72%
0.9296	-0.7°	1.4629	"	20.1	36.9	75-76%
0.9260	-1.2°	1.4642	"	19.6	45.7	70%

A remarkable feature of this oil is the isolation of the phloracetophenonedimethyl ether, a solid phenol of melting-point 82°-83°, from the first consignment from Eidsvold. As this constituent had not previously been detected in eucalyptus oils, it was decided to secure additional consignments of leaves in order to make a general confirmation. Unfortunately it was not found in any of the other consignments, though evidence of its presence through the characteristic colour reaction with ferric chloride was obtained. The steam-distilled portion of one specimen had the following characters:—Specific gravity, 0.9263; optical rotation, $\pm 0^\circ$; refractive index, 1.4611. It could not be freed from cymene. Also, it was not found possible to identify chemically the principal terpene or hydrocarbon accompanying the cineol.

Citronella Oil Alcohols Determination.—Investigations have been carried out to determine the action of acetic anhydride on citronellal ("Chimie et Industrie," June 1927,) and it is concluded, in verifying the opinion of M. de Jong, that this action under analytical conditions leads not to the production of isopulegyl acetate but to a mixture of acetic ethers capable of regenerating citronellal. Such is the case of the enolic acetate of citronellal:—



which boils at 104-106° under 4 mm. of mercury, and the diacetate of citronellal



boiling at 135° under 4 mm., formerly described by Semmler. The enolic acetate, saponified in presence of semicarbazide, was in a remarkable state of purity, since 10 gm. of this compound gave 10.2 gm. of semicarbazone, the theoretical figure being 10.76 gm., and the 10 gm. of diacetate of citronellal gave 8 gm. semicarbazone of citronella, the theoretical quantity being 8.2 gm. The formation of the second of these bodies explains the fact that the acetylation number of pure citronellal is always more than double. Acetylation of citronellal is not comparable to that of an alcohol like geraniol, where the final product of the reaction is a body like geranyl acetate. Acetylation of an alcohol like geraniol consists in the simple reaction of an acid anhydride group on an alcohol. It is effected by the simple action, on heating, of two compounds; it suffices if the quantity of acetic anhydride present is sufficiently large to complete the reaction. The case of acetylation of citronellal is

more complex. Enolisation of the aldehyde function corresponds to a modification of the molecular structure, and there is a change in the bonds of the aldehyde carbon. The transformation of citronellal into acetate by means of acetic anhydride is very imperfect in the absence of a catalyst such as the alkali salt of an organic acid, for example, sodium acetate. The necessity of working in the presence of fused anhydrous sodium acetate is in effect indispensable, as has been pointed out by several investigators.

Bulgarian Geranium Oil.—Dr. Paolo Rovesti has examined a specimen of oil obtained from a plant known as "Sdravez del Balcan," and published his results in "Il Notiziario Chimico-Industriale," August 1927. The plant is *Geranium Macrorrhizum*, Linn., which is widely distributed throughout the Balkan peninsula and appears also in some other European countries. The plant is also described in Bulgaria as *Pelargonium Bulgarica*, a name that is not listed in the Index Kewensis nor in any other botanical literature as a synonym for *Geranium Macrorrhizum*. Schimmel reports on the examination of four samples as follows:—Melting point, 25°-35°; specific gravity at 40°, 0.9431-0.963; optical rotation, -5° 45' to 7° 3'; refractive index at 40°, 1.50642 to 1.51638; acid number, 1.2-1.5; ester value, 5.6-14.9; ester value (after acetylation), 33.6-35.5. Soluble in its own volume of alcohol 90°, in 6-7 volumes alcohol 80°, with separation of hydrocarbon and further addition of alcohol. The solid portion of the oil is about 50 per cent., and on fractional crystallisation from dilute alcohol forms hard prisms melting at 54°-55°. Separation of the solid part by direct distillation of the natural oil gave an oil with similar constants to the above:—Specific gravity, 0.9460; optical rotation, -8° 10'; refractive index, 1.50698; ester value after acetylation, 54.1. Soluble in 0.5 volume of alcohol 90 per cent., with separation of hydrocarbon if more than 1.5 volumes are added. The oil presents a semi-fluid aspect, pasty, with a supernatant limpid liquid, greenish-yellow in colour, having a characteristic odour of orris with a faint perfume of cedarwood. The solid mass consists of a mass of colourless minute prisms, and can be easily separated by centrifuging. The normal physical constants of the oil treated with anhydrous sodium sulphate to ensure complete dehydration are given:—Melting point, 28°; specific gravity at 50°-15°, 0.9411; optical rotation, -3° 55'; refractive index, 1.5093; acid number, 0.78; saponification number, 3.53; saponification number after acetylation, 28.6; soluble in 1.2 volumes of alcohol, 90 per cent. at 18°. The solid portion of the oil is probably a hydrocarbon, insoluble in dilute alcohol and was separated by addition of alcohol 85 per cent. at -15°. By similar treatment with dilute alcohol, colourless, odourless shining prisms can be obtained after crystallisation from alcohol at 49°-50°. The oil deprived of the stearoptene, which remains dissolved in cold alcohol, can be obtained by evaporation in a water bath *in vacuo* to the extent of 53 per cent. of oil treated. This oil, pale greenish-yellow in colour, possesses the actual odorous constituents of the essential oil, and has the following characteristics:—Specific gravity, 0.93622; optical rotation, 7° 5'; refractive index, 1.4975; acid number, 1.38; saponification number, 5.91; saponification number (after acetylation), 61.60. Soluble in 2.1 volumes of alcohol 80 per cent. at 20°. The essential oil, on account of its characteristic odour, as well as entering directly into perfumery as a substitute for orris, serves as an adulterant for Bulgarian rose oil. It has been ascertained that already in Bulgaria the cultivation of this plant has extended to the neighbourhood of several distilleries, and it is distilled in small quantities along with rose petals. The oil thus obtained is said to differ very little from genuine rose oil, and it is even stated that the otto is improved by this addition. The addition in any quantity of *Geranium Macrorrhizum* to rose oil is determined from the physico-chemical constants, e.g., increased density, refractive index and melting point of the isolated stearoptene, and lowering of the saponification number after acetylation.

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FIXED OILS AND FATS

Fatty Acids of Coconut Oil.—H. L. Taylor and H. T. Clarke ("Journal of the American Chemical Society," Vol. 49, No. 11) have obtained definite information as to the quantitative distribution of the various lower fatty acids of coconut oil by systematic fractionation of their methyl esters. The following acids were isolated:—Caproic acid (0.46 per cent.), caprylic acid (8.7 per cent.), capric acid (5.6 per cent.), lauric acid (45.0 per cent.), and myristic acid (16.5-18 per cent.). No attempt was made to separate the esters of acids higher than myristic acid.

Oil of *Centrophorus Granulosus*.—A. Chaston Chapman ("Analyst," November 1927) describes his further experiments on shark-liver oils, also comparing them with the work of Japanese investigators. He states that there is still room for difference of opinion as to the molecular formula of the unsaturated hydrocarbon which had been named by him "spinacene" and by Tsujimoto "squalene." The oil used in the experiments was specially supplied to him as "Barroso" oil (oil of *Centrophorus granulosus*). This liver oil was found to contain, in addition to the unsaturated hydrocarbons, cholesterol, batyl and selachyl alcohols and glycerol, together with stearic, palmitic and oleic, and possibly smaller proportions of other saturated and unsaturated fatty acids. From this it would appear that in respect of non-hydrocarbon constituents the liver oil of the *Centrophorus granulosus* is very similar in composition to that of certain other shark-liver oils which have been studied and described by Tsujimoto and others. From the purely analytical point of view, the study of this oil has been of importance as affording a striking example of the impossibility, in many cases, of separating the hydrocarbon and alcoholic constituents of oils—that is to say, the so-called unsaponifiable matters—from the soaps produced by the saponification of the esters. The former are generally soluble to a very appreciable extent in the latter, and cannot be removed completely, even by repeated extraction with immiscible solvents. It is, therefore, very easy to obtain too low a result for the percentage of unsaponifiable matters, and, at the same time, it is impossible to obtain the alcohols in a state of sufficient purity to admit of their complete identification. These difficulties have been experienced by others who have worked with these liver oils.

MATERIA MEDICA

New Piperidine Anæsthetic.—J. R. Thayer and S. M. McElvain ("Journal of the American Chemical Society," Vol. 49, No. 11) have prepared a number of 1-, 3-, 4-tri-substituted piperidines. Of these, 1-phenyl-ethyl-3-carbethoxy-4-piperidyl-*p*-aminobenzoate is twice as efficient as cocaine in producing corneal anæsthesia, whilst its toxicity is only one-fifth that of the same alkaloid.

Blueberry Leaf Extract.—F. M. Allen recently discussed the physiological and clinical properties of this substance in relation to carbohydrate metabolism ("Journal of the American Medical Association," Vol. 89, p. 1577). He states:—Blueberry leaf tea showed distinct but variable influence on the alimentary hyperglycemia of dogs. Another investigator was able to explain the variable results by demonstrating the existence of two antagonistic ingredients in the leaves, one tending to raise and the other to lower the blood sugar. The latter substance was partially purified and was given the name myrtillin, because obtained from the myrtle family of plants. Myrtillin, a substance of unknown nature and composition, is not insulin or a substitute for insulin, but it exerts some positive and easily demonstrable influences in normal and depancreatized dogs. Animal experiments probably constitute the most rigorous objective test that can be applied to a diabetic remedy, and the author believes that the striking and uniform benefits in diabetic dogs justify the trial of myrtillin in human beings. The advantages

of myrtillin are that it can be taken by mouth; it is harmless under all conditions, and instead of causing hypoglycæmia it tends rather to prevent it. Another advantage for the general practitioner is that most of the cases treated by him belong in the milder group which, on the whole, react most favourably to myrtillin. There are, however, the disadvantages that myrtillin in general is feeble and uncertain as compared with insulin. It is useless against acidosis or infections, and it should not be given to glycosuric patients in the expectation of seeing the sugar clear up as it does under such a powerful agency as insulin. It is best to abolish glycosuria and hyperglycæmia by the necessary preliminary measures, and then to give myrtillin as a means of gradually raising tolerance or reducing insulin. A considerable proportion of failures must be expected, especially in the severest cases and in young patients. The favourable results, when obtained, are more lasting and tend more in the direction of cure than those of any method heretofore known under any diabetic treatment. Exceptional patients have been relieved of insulin dosage ranging above 50 units daily, and have also discontinued weighing their diet. As a rule, only smaller degrees of benefit are to be expected, and exaggerated hopes should be discouraged.

MEDICINE

Ephedrine in Urticaria.—Six patients with chronic urticaria were treated by B. K. Kesten ("Archives of Dermatology and Syphilis," August 1927) with ephedrine sulphate orally, with complete relief in two and improvement in two. Eleven patients with chronic urticaria and angioneurotic oedema were similarly treated. Seven were cured, two were improved and two were unimproved. In these cases from 0.01 to 0.12 gram of ephedrine sulphate was given every three hours for from one to seven weeks.

Mycotic Warts.—A. P. Chavarria and P. G. Shipley ("Johns Hopkins Hospital Bulletin," July 1927) took cultures from warts removed from three persons, members of one family, who became infected, one from another. The cultures yielded a fungus, a nocardia. The lesion would seem to have resulted from direct contact with an infected individual rather than indirectly through a vegetable or animal carrier of the micro-organism. In all probability the disease, in the first member of this family to be infected, was acquired also by contact with a previously inoculated individual, since there is a history of a close friendship having existed between the family with which this paper deals and a man and wife who were said to have had very "sore fingers." The lesions were treated successfully with an ointment consisting of salicylic acid, 3 grains; mild mercurous chloride, 4 grains; wool fat, 1 ounce.

Quinine Dosage in Malaria.—V. S. Hodson ("Kenya Medical Journal," March 1927) pleads for a moderate dosage of quinine in the treatment of malaria; 10 grains after breakfast and 10 grains after dinner is said to be sufficient. This dose is based on the rate of excretion, which is about 10 grains to the pint of urine. This dosage is given to a patient with an acute attack and is continued for four days, at the end of which time the patient is afebrile, no organisms are to be found in the peripheral blood, and to all appearances the cause of the illness has been absolutely controlled. At this stage, the administration of quinine is stopped for two reasons: (1) because the result of its administration has been so satisfactory, and (2) because any further immediate dosage gives rise to quinism in one of its many forms. By stopping the administration of quinine as soon as its effect has been established, time is allowed for the excretion of all the drug before its use is recommenced; there can be no possibility of organisms becoming quinine resistant and, more than that, a period is allowed during which the resistance of the individual is stimulated. Three days' freedom from quinine is the first allowance, which is then followed by a further three days of quinine administration, followed in turn by four days off. This system of giving and with-

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holding quinine is carried on for from two and a half to three months and is varied according to its effects, which are judged at weekly or, later on, at fortnightly examinations of the patient.

Thallium Treatment of Ringworm.—J. H. Twiston Davies ("Proceedings of the Royal Society of Medicine," October 1927) states:—The secret of success with thallium lies in the after-treatment, and for this reason one gets better results in private work than with hospital out-patients. In every case the infected hairs have to be extracted by hand, and this must be done on the day on which the hair first becomes sufficiently loose. The regrowth of new hair is occasionally so rapid that a delay of two or three days may endanger the result. His practice is to give 8.74 mgm. thallium acetate per kilo and instruct the mother to rub Whitfield's ointment into the unaffected parts of the scalp only, and to wash the head every other day for the first week and daily for the second. The child should be brought up again when the hair is sufficiently loose to be pulled out in tufts. The hair is not loosened simultaneously all over the scalp, but when a clearing can be made easily round any infected patch, that is the time to extract the infected stumps. As epilation progresses the bald areas are painted three times daily with 4 per cent. iodine in rectified spirit for four days and the whole scalp rubbed with sulphur ointment for the rest of the week, this sequence being repeated for about four weeks. As regards the thallium, he experienced only the slightest toxic effects in its application to normal children with tinea, consisting of pains in the joints of the lower extremities between the fifth and tenth days. Patients with alopecia areata are hypersensitive to thallium.

Grape-fruit in Diabetes.—Grape-fruit grown on the hills of Florida, where the soil is composed of a top layer of Norfolk loam and a very deep subsoil of red sand clay carrying about 3 per cent. of iron oxide, was found by E. C. Taylor and R. H. Alter ("Michigan State Medical Society Journal," October 1927) to produce a definite effect in diabetic conditions. Fruit from many different localities in Florida was tried, and either no results were obtained or blood sugar was greatly increased under its use, whereas substitution of the hill grape-fruit resulted in a prompt disappearance of the sugar. The fruit, grown on the south shore of Lake Harris in Lake County, the section known as the Howey development, is the only fruit found possessing these merits. There is good ground for the belief that this fruit carries an enzyme which, in addition to its wonderful power of increasing the alkalinity of the blood and gastro-intestinal tract, and assisting in restoring faulty and unbalanced metabolism, brings these results. Best results were obtained by the administration of six grapefruit daily. Analysis shows that each grape-fruit contains 2.4 grams of protein, 0.6 gram of fat, and 31.2 grams carbohydrates, which are converted into 32.65 grams of dextrose and equal 139.8 calories. Six grape-fruit thus have 839 calories. Clinical experience and clinical analysis of the blood have clearly demonstrated that this grape-fruit burns much more blood sugar than insulin, and also does what insulin does not—corrects the cause. Its effects are much more lasting than those of insulin, and a very large percentage of the cases are substantially cured.

Advances in Amoebic Dysentery Treatment.—P. Manson-Bahr and E. G. Sayers ("British Medical Journal," II, 1927, p. 490), in discussing this subject, report on the value of emetine-bismuth-iodide and yatren, when used alone or in conjunction with each other. Yatren was discovered in 1921 by P. Mühlens and W. Menk. It is an iodine-oxyquinoline-sulphonic acid compound, and may be given orally, rectally, intramuscularly, or even intravenously. The authors have experience only of the first two methods, but have now used them on a large series of cases. The mode of action of yatren is a little uncertain, but it is claimed that it is a definite cell stimulant. *In vitro* it has no very powerful action on *Entamoeba histolytica*, but in a dilution of 1 in 100

it has been found capable of exterminating all the entamoebae in artificial culture within a period of three hours and, in a higher dilution (1 in 1,000), it prevents the multiplication of this organism from taking place after a period of twelve hours. Yatren is certainly a safe non-toxic drug, and much more pleasant from the point of view of the patient, who, as a general rule, increases in weight during the treatment. The authors believe it to be a drug of the very greatest value, and can fully confirm its efficacy in curing long-standing cases of amoebic dysentery which have proved resistant to emetine and emetine-bismuth-iodide. This is illustrated by the following rather striking cases. The changes undergone by the mucosa during combined emetine-bismuth-iodide and yatren treatment are rapid and striking. A healed bowel after treatment is one in which signs of amoebic activity are entirely absent, but where traces of former lesions are seen in the small depressions or pits which everywhere stud the mucosa, and with which the clinician should make himself familiar as representing a bowel cleansed of amoebic infection. No observations are yet forthcoming to show how long these small and almost microscopic depressions persist, but that they are diagnostic of latent or recently healed intestinal amoebiasis there can be little doubt.

Ortho-iodoxybenzoic Acid in Arthritis.—The results of thirty-one cases of chronic arthritis treated with intravenous, oral or rectal administration of *o*-iodoxybenzoic acid, reported by N. C. Trauba ("Journal of the American Medical Association," October 1, 1927), show 16 per cent. markedly improved, 16 per cent. moderately improved, 32 per cent. slightly improved, 29 per cent. unimproved, and two cases of improvement, or 7 per cent., due to other therapeutic measures. Those cases listed as "slightly improved" showed so little improvement in general that little credit can be given to the drug. These results, while not as marked as those obtained by Young and Youmans and by Smith, are nevertheless encouraging. More study is necessary to determine the most efficacious form of the drug, the best method of administration, the size and frequency of dosage, and the mode of action. The first form in which the drug was used was a 1 per cent. solution prepared by neutralising 1 gram of *o*-iodoxybenzoic acid with 3.57 grams of barium-free normal sodium hydroxide, according to the method outlined by Dr. A. S. Loevenhart. Sterilisation was assured by heating this solution in a water bath at 97° C. for ten minutes. Unencouraging results with this method induced the author to use the ammonium salt of *o*-iodoxybenzoic acid. A 1 per cent. solution of this salt was prepared by dissolving 1 gram of the salt in 100 c.c. of boiling distilled water and filtering through filter paper. This solution constituted one intravenous dose, which was given under sterile precautions within one hour after preparation. The intravenous administration of the drug gave marked discomfort in every case; the following symptoms, in the order noted, being observed when the sodium or ammonium salt was used:—Smarting of the tongue, of the nasal mucous membrane, of the conjunctivæ and of the forehead; then generalised tingling of the skin followed by a burning sensation in the epigastrium. Nausea occurred frequently and three of the patients had a tendency to vomit after every injection. There was marked epiphora, flushing of the skin and perspiration. Oral administration—0.5 gram of the drug in capsules coated with phenyl salicylate—produced the following symptoms in the order named:—Nausea of varying degree and duration and a burning sensation in the epigastrium. This was followed somewhat later by tingling of the skin and a feeling of warmth in the affected joints.

OPTICS

Detecting the Dominant Eye.—Among the methods of detecting the dominant eye which were described by A. S. Lidiard, in a paper before the recent International Optical Congress, at Oxford, the following is stated to be the most satisfactory. The patient holds a sheet of

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metal or similar material having an aperture of about one inch in diameter in both hands, and fixes the examiner's open eye, the other eye being closed. The patient then raises the metal until the examiner's eye appears to be in alignment with the aperture. The aligned eye is the dominant one.

Stereoscopic Vision.—G. W. Colebrook, in a paper read at the recent International Optical Congress, states that stereoscopic vision is not due to the actual fusion of the pictures, but to the fusion of cerebral projected images. Diplopia, which may be either crossed or uncrossed, is a preliminary condition to obtaining a sensation of stereoscopic relief. When a stereoscope of the Brewster pattern is used, the diplopia is crossed. The lateral images, which are superfluous, are eliminated by the median partition. The use of a stereoscope facilitates, but is not essential to, the production of stereoscopic relief.

The Importance of the Median Plane.—W. B. Barker, in a paper before the recent International Optical Congress, defines the median plane as that vertical plane which is at right angles to and which bisects the base line joining the two fovea. In the visual field of the two eyes there is a common segment, and the author suggests that in cases of equal visual acuity of the two eyes (with glasses if required) the common segment should be bi-laterally distributed about the median plane. If it is not so, perfect binocular fusion will presumably only be obtained by inducing a heterophoria in one eye. This would appear to be an additional way of sifting out cases which should be treated as potential subjects for prisms. It also suggests that for perfect fixation there should be: (1) Equality of alignment of the two visual axes to the median plane; (2) equality of exertable accommodation in the two eyes; (3) equality of distribution of the common segment of the visual field. It is only by having due regard to all three that perfect binocular poise can be attained.

PHARMACOLOGY

Effect of Camphor, Menthol and Eucalyptol on Nasal Mucosa.—N. Fox ("Archives of Otolaryngology," August 1927) has determined that menthol acts locally as an irritant to the nasal mucosa in dilutions as low as 0.5 per cent. Eucalyptol and camphor have little, if any, local action on the nasal mucosa in percentages up to 5 per cent. The action of menthol is purely local, producing a sensation of potency, owing presumably to the stimulation of the temperature end organs, even though the concomitant resistance to air passages is actually increased.

Chamomile, Mint and Fennel in Inflammations.—W. Arnold ("Archiv für Experimentelle Pathologie und Pharmakologie," July 1927) compared the action of a 5 per cent. infusion of these drugs with that of warm water in experimental inflammations induced by mustard, artificial sunlight, tuberculin and in a drug rash. The chamomile tea and a 0.005 per cent. emulsion of oil of chamomile in water had a decidedly mitigating influence, due to constriction of the capillaries. The oil of mint was less efficient, while the oil of fennel increased the inflammation.

The Rat-Poisoning Property of Red Squill is due to a relatively thermostable substance which is quite distinct from the toxic glucosides (with a cardiac action), according to F. R. Winton ("Journal of Pharmacology and Experimental Therapeutics," Vol. 31, p. 123). The rat-poisoning substance is soluble in water and in alcohol (90 per cent.), but is destroyed by boiling with dilute acids or alkalis. The toxic dose for female rats is about half that for males, the cause of death being paralysis and convulsion after ingestion by mouth. The rat-poisoning substance is present in significant amount in red squill, but not in the white squill.

Poisoning by *Jatropha Curcas*.—J. M. Watt and M. G. Brandwijk ("South Africa Medical Association Journal," July 23, 1927) assert that poisoning by the nut of the physic nut tree (purging nut tree, *Jatropha*

curcas, Linn. is due to two irritant substances, an acid of the crotonoleic type, and a toxalbumin, curcin, which in addition produces deleterious effects on the blood. The best treatment is to wash out the stomach thoroughly and to give demulcents. As the symptoms in some of the recorded cases seem to have taken some time to develop, it is worth while washing out the stomach immediately in cases in which it is known that the nut has been eaten in quantity, even though symptoms may not have appeared.

Pharmacology of Ephedrine.—L. W. Rowe ("Journal of the American Pharmaceutical Association," Vol. XVI, p. 912) gives experimental evidence of the comparative pharmacological action of ephedrine ($C_6H_5.CHOH.CH_2.CH_2.NHCH_3$) and adrenalin ($C_6H_5(OH)_2.CHOH.CH_2.NH.CH_3$). The impression that the newer ephedrine would replace adrenalin owing to activity on oral administration and prolonged action is not borne out by the tests. The claims appear to be exaggerated, as the oral dose is 100 times that which intravenously gives the same systemic action (pressure rise). Adrenalin is fully 100 times more potent than ephedrine sulphate, but its safety factor is twice as great, as the toxicity of adrenalin is only 50 times that of ephedrine injected hypodermically. The experiments indicate that the uses of ephedrine will be more limited and frequently quite distinctive from those of adrenalin. Ephedrine acts appreciably when given in large doses orally. Apparently specific effects such as the broncho-dilator action in asthma may be elicited by smaller oral doses (e.g., 50 mgm.).

Results of Vitamin A Deficiency.—E. C. Van Leersum, in a recent communication, drew attention to the relationship between vitamin A deficiency and urolithiasis, a question he has recently been studying ("British Medical Journal," 1927, II, p. 874). He found that in healthy, adequately fed rats, calculi rarely appear. On the other hand, calculi appear very frequently, often in three to four weeks. Altogether the author examined 254 rats with regard to their kidneys; 76 had had a satisfactory supply of vitamin A, and 178 had suffered from vitamin A deficiency. Of the 76 rats, 10 had lime deposits in their kidneys, but these deposits were very small in number, one, or at most two, to a section. Hence, with healthy, adequately fed rats, lime deposits of any size in the kidneys may be said to be exceptional. Calcium deposits in the tubules were, however, almost constant in the rats suffering from deficiency of vitamin A; of 178 rats deposits were found in 158 (87 per cent.), whereas there was a frequency of calculi in the bladder of only 35.4 per cent. It may be concluded that in rats there is, without doubt, a connection between deficiency in vitamin A and the formation of phosphatic calculi.

Dosage of Mercurochrome.—W. H. Martindale, writing in regard to the variation in dose and dilutions employed for mercurochrome ("Lancet," 1927, II, p. 1267), states:—A pharmacologist, to whom he forwarded supplies for experiments on animals, reported that a certain proportion of deaths might follow the injection of 8-15 c.c. of a 1 per cent. solution (i.e., 0.08 to 0.15 gm.) in man. On pointing out to him that a dosage of this kind has been used clinically in many cases he modified his opinion to the extent of admitting that there is an enormous variation in the tolerated dose of any drug in animals. Animal experiments are of great help, but clinical experience is clearly more valuable. In "New and Nonofficial Remedies" it is stated that 10 mg. per kilo invariably kills rabbits, yet the dose of 5 mg. per kilo (i.e., 0.3 gm. for a 10-stone man) is mentioned in that work. Dr. Martindale states that he has information of the repeated clinical use of 0.1 increasing to 0.2 g.m. of the compound in this country, injections in some instances having been given every day, without any untoward result except a mild stomatitis. Yet, in other cases, 0.1 gm., both in 1 and 0.5 per cent. solution, was not tolerated, intense diarrhoea being caused. His own view is that the recommendation of L. S. Dudgeon ("Lancet," 1926, I, 172) of

The Progress of Pharmacy and Allied Sciences

10 c.c. of a 1 in 200 solution as the maximum that should be given is a safe one to go upon, reserving bolder dosage for such grave infections as plague.

Antiseptics in Mycotic Infections.—H. B. Myers ("Journal of the American Medical Association," Vol. 89, p. 1834) reports:—Infections occurring chiefly on the hands of employees of fruit canneries in the Pacific North-West proved to be due to a yeastlike organism. The antiseptics commonly employed in treating infections of bacterial origin proved quite unsatisfactory in attempting to combat the lesions produced by this organism. Recalling the use of cinnamon water to prevent mould growth in the infusion of digitalis and compound chalk mixture, the author painted a dilute alcoholic solution of cinnamon oil on one of the lesions produced by this yeast. Almost immediate relief of the disagreeable subjective symptoms occurred, followed by rapid healing of the infection. Further use of this oil in dilute solution proved it to be most effective, without fail, in making the infections yeast free and producing rapid healing. In order to determine whether this most pronounced fungicidal action is possessed by a large number of the volatile oils, cultural tests were made with the yeast isolated from the infections produced in the fruit handlers. The results of these cultural tests were given, showing that considerable variation exists in the fungicidal activity of the more commonly used volatile oils. It is interesting to note that the comparative bactericidal efficiency of the various volatile oils does not correspond to the fungicidal activity of these oils. Marked fungicidal activity was exhibited by thymol, its isomer carvacrol, and the volatile oils of mustard, cinnamon and clove. Thymol and the oils of cinnamon and clove proved equally fungicidal toward other yeasts of apparent pathogenicity. Thymol, but not the oils, proved equally destructive to *Actinomyces hominis*. Solutions of 70 per cent. fungicidal strength are not effective in restraining growth of yeast. Tolerant or fastness is apparently not developed by yeast towards these oils. A few observations of therapeutic use support the cultural results. The author concludes:—Thymol, carvacrol and the volatile oils of mustard, cinnamon and clove possess marked fungicidal powers. The remainder of a large group of the more commonly used volatile oils are comparatively inactive towards the yeast. Therapeutic trial of thymol and the oils of cinnamon and clove in treating mycotic infection seem warranted.

PHOTOGRAPHY

The Latent Image and Development.—H. J. Vogler and W. Clark ("British Journal of Photography," November 11, 1927) endeavour to show that there is considerable evidence that developability requires the formation of a certain minimum size of nucleus on the grains, and that adsorption and peptisation effects probably play some important part in determining developability. The explanation advanced is that developability implies the formation of a stable lattice of silver (or other nucleus material) sufficiently strong to withstand the peptising tendency of the developer long enough to allow deposition of the reduced silver upon it. As sensitivity is purely a development effect, it follows that the sensitivity of a grain is determined by the exposure necessary to form a stable lattice of silver which will act as a development centre.

A Tentative Hypothesis on the Latent Image.—A. P. H. Trivelli ("Journal of the Franklin Institute," November 1927) states that the fact that selenium and several other substances, including the silver halides and silver sulphide, are photo-conductive as well as photo-electric, taken together with the facts that in the silver halide grain silver sulphide and perhaps silver exists and that these appear to be more photo-electric than the surrounding silver halide, have led to the conclusion that the photo-electric effect and the photo-conductivity may play a part in the formation of the latent image. It is

assumed that when light falls on the silver halide grain containing sensitising specks of silver sulphide or silver, the greater photo-electric effect of silver sulphide or silver compared with that of the silver halide produces a difference in potential between these and that in some way yet unknown the photo-conductivity produced by the light action causes an electrolytic deposition of silver in the neighbourhood of the speck, hence increases its size and in consequence the developability of the grain. Such an effect does not preclude the simple photo-chemical decomposition of silver halide by light to give silver nor the possibility of silver sulphide serving as a halogen absorber. The mechanism of this photo-electric and photo-conductive effect is yet uncertain and requires considerable experimental work to determine its nature, but qualitatively there seems to be a correlation between the intermittency effect and also the failure of the reciprocity law and the latent image formation.

VETERINARY MEDICINE

Formalin in Johne's Disease.—A. L. Sheather ("Journal of Comparative Pathology and Therapeutics," September 1927), who has been investigating a report that satisfactory results had been obtained by intravenous injections of formalin in 0.5 per cent. strength at intervals of five to seven days, considers that, as the result of four test cases, this view cannot be supported. The observations show that the intravenous injections of formalin are sometimes remarkably efficient in checking diarrhoea in Johne's disease, and he suggests that it would be worth while using the treatment for that purpose when employing other drugs in the search for one that would act directly on the casual bacilli.

Prophylaxis of Lamb Dysentery.—T. Dalling, J. H. Mason and W. S. Gordon ("Journal of Comparative Anatomy and Therapeutics," September 1927) give the results of their experiments during the past lambing seasons. Vaccines made from a type of *B. welchii* and from strains of *B. coli* isolated from lambs affected with lamb dysentery were used to immunise ewes in Scotland, Northumberland and Wales with a view to protecting their lambs against lamb dysentery. Two inoculations (one in autumn and one in spring) were made and the following results obtained:—*Where controls were kept:* Among 4,046 lambs born from inoculated ewes the mortality was 0.87 per cent., while out of 2,152 lambs from control ewes 8.04 per cent. died. *Where no controls were kept:* In Scotland the death-rate was 0.77 per cent. among 1,029 lambs. In Northumberland it was 4.17 per cent. among 15,560 lambs. Serum made from types of *B. welchii* was used on young lambs, and the following results were obtained:—*Where controls were kept:* Of 1,122 lambs injected five died of lamb dysentery, while of 1,241 untreated, 213, or 17.16 per cent., died. *Where no controls were kept:* Two out of 1,877 lambs died. It would appear that the *B. coli* part of the vaccine plays little or no part in the protection of the lambs.

Effect of Irradiation and Cod-liver Oil on Poultry.—E. W. Mercer and F. H. W. P. Tozer ("Journal of the Ministry of Agriculture," October 1927) have conducted tests to determine the value of cod-liver oil and ultra-violet irradiation for poultry. The experiment was carried on for eleven weeks, during which time the number of eggs laid by the various pens was:—

No. 1 Control	...	...	...	...	...	259
No. 2 Cod-liver oil	...	...	...	...	...	237
No. 3 Radiated food	...	...	...	...	...	232
No. 4 Radiated cholesterol	...	...	...	...	...	221
No. 5 Birds irradiated	...	...	...	...	...	211

With six exceptions in pen No. 5, all the eggs were up to 2-oz. standard. It is considered that poultry farmers who keep their birds under healthy, open-air conditions, with suitable rations and plenty of greenstuff, will not benefit by feeding cod-liver oil or by irradiating either their fowls or the feed.

Deaths

BENNISON.—At Osmotherley, on December 11, Mr. Richard Headley Bennison, chemist and druggist, North Ormesby, Middlesbrough. Mr. Bennison qualified in 1909.

CHERRY.—On November 22, Mr. James McCully Cherry, Ph.C., 24 Francis Street, Newtownards, co. Down. Mr. Cherry, who qualified in 1904, had been in failing health for some time. The funeral was largely attended by trade and Masonic friends.

DODDS.—At his residence, 164 Coltman Street, Hull, on December 27, Mr. William Dodds, retired chemist and druggist, aged eighty. Mr. Dodds carried on business in the Hessle Road district of Hull, retiring about twenty-five years ago. He is survived by a widow and two sons.

FRASER.—At 22 Dixon Avenue, Glasgow, on December 10, Mr. John Fraser, retired chemist and druggist, formerly of Inverness, aged eighty-one.

KENDALL.—At his residence, 10 Wentworth Road, York, on December 23, Mr. Edward Basnipp Kendall, Ph.C., aged eighty. Mr. Kendall served his apprenticeship at Boston. He passed the Major examination in 1872, and after experience in the South went to York and acquired an interest in an old business in The Pavement. The pharmacy was transferred to 6 Coney Street thirty-five years ago, and will be continued by Mr. Kendall's son, Mr. L. J. Kendall. Mr. E. B. Kendall took but little part in public affairs; he held office, however, as a churchwarden at All Saints' Church.

McROBB.—At the General Hospital, Johannesburg, on December 17, Mr. William Christie McRobb, chemist and druggist, Vereeniging, Transvaal, South Africa. Mr. McRobb qualified in 1903.

MORRIS.—At his residence, "Halcyon," Downshire Road, Belfast, on December 19, Mr. Abraham Morris, M.P.S.N.I. Mr. Morris served his apprenticeship with Mr. James Guiler, Belfast, and was afterwards an assistant with McAdam & Bates, Omagh, and Mr. James Tate, Belfast. He passed the Licence examination of the Pharmaceutical Society of Ireland in 1904, and subsequently commenced business at 130 Ravenhill Road, Belfast, where he built up a large trade. Mr. Morris was an enthusiastic photographer and naturalist, and his loss will be keenly felt at the annual chemists' golf competition, at which he was invariably the life and soul of the party. He also took a great interest in various trade organisations. Mr. Morris is survived by a widow.

RICHARDS.—At his residence, 32 Toledo Avenue, Durban, Natal, suddenly, on December 2, Mr. Sydney Francis Richards, chemist and druggist. Mr. Richards was an Australian by birth, and came to Durban at the age of thirteen. During the war he served the Empire in both West and East Africa, and subsequently was assistant to Stranack & Williams. He remained there until quite recently, when Stranack & Williams sold their business to Lennon, Ltd. Eventually Mr. Richards purchased Mr. W. B. Levack's pharmacy at 273 Berea Road, Durban, and this business he successfully carried on until his death.

Personalities

MR. PATRICK TWYMAN has joined the representative staff of John W. Royle, Ltd., mineral water importers, 19 Oxford Street, London, W.1.

MR. W. B. FARADAY (Bristol-Myers Co., 112 Cheapside, London, E.C.2) has returned from his business trip to New York, and is now back in the London office.

MR. K. B. MAVLANKAR, manufacturing chemist, Chiswick Chemical Works, London, W.4, has been elected chairman of an Indian Chamber of Commerce, which has been recently formed by a number of Indian merchants and business men in London and the larger provincial centres. The temporary offices are at 53 New Broad Street, E.C.2.

Trade Notes

CLOSING FOR STOCKTAKING.—S. Maw, Son & Sons, Ltd., 7-12 Aldersgate Street, E.C.1, inform us that their premises will be closed for stocktaking on December 30 and 31.

C. & D. DIARY.—Will subscribers please make a note on page 134 of the 1928 *Diary* that the new address of A. Elder Reed & Co. is Peninsular House, 28 Monument Street, London, E.C.3, instead of 19 St. Dunstan's Hill, E.C.3?

W. B. CARTWRIGHT, LTD., manufacturing chemists, Rawdon, Leeds, whose advertisement in this issue is printed in two colours, report another record year for the sales of Moorland Heart Shape digestive tablets.

MONSOL PREPARATIONS.—Particulars are given in the advertisement pages of a special window-display offer in connection with Monsol preparations. The sole distributors in this country are Thomas Christy & Co., 4-12 Old Swan Lane, London, E.C.4.

NORMACOL is the subject of an advertisement printed in two colours in this issue. H. R. Napp, Ltd., 3 and 4 Clement's Inn, London, W.C.2, point out that the prices of this product are protected under the scheme of the Proprietary Articles Trade Association.

LEMON, GLYCERIN AND HONEY.—This old-fashioned remedy, which more than holds its own as a popular medicine for coughs, etc., is offered in an attractive packing by Raimes & Co., wholesale druggists, York. Generous terms are quoted in our advertisement pages.

POTTER'S CATARRH PASTILLES.—Attention is directed to these "best sellers" in this week's coloured advertisement pages. Continuous publicity work in the lay Press by the proprietors, Potter & Clarke, Ltd., 60-64 Artillery Lane, London, E.1, is likely to create a particularly large and urgent demand during this wintry weather, and chemists should look to their stocks.

OLEO-RESINS of ginger and capsicum are suggested by Stafford Allen & Sons, Ltd., manufacturing chemists, Cowper Street, London, E.C.2, for use in place of the spices, compared with which they possess several advantages. Some of the processes in which they may be employed are mentioned in our coloured advertisement pages, and further details may be obtained on application.

Trade-marks Applied for

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1926, p. 309.

(From "The Trade-marks Journal," December 7, 1927.)

- "WALKERYNE"; for antiseptic medicines (3). By H. M. Walker, 54 Hartington Terrace, South Shields. 484,676.
- "SCLERADIUM"; for all goods (3). By R. Hoffbauer, Leipzigerstrasse 74, Berlin, S.W.19. 484,678.
- "BITRATED" and "BITRATE"; for medicinal chemicals (3). By International Chemical Co., Ltd., Braydon Road, London, N.16. 485,398/399. (Associated.)
- "CORALIN"; for linen cloth for photographic purposes (27). By B. J. Hall & Co., Ltd., Chalfont House, Great Peter Street, London, S.W.1. 484,483. (Associated.)
- "LACQUIN"; for food substances (42). By The West Surrey Central Dairy Co., Ltd., 80 North Street, Guildford, Surrey. 483,703.
- "V. CORAZZO" facsimile signature; for hair preparations (43). By V. Corazzo, 267 Camberwell Road, London, S.E.5. 483,814.
- "LADY FAYRE"; for toilet articles (48). By Jarrett, Rainsford & Laughton, Ltd., Kent Street, Birmingham. B476,854.

Information Department

INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated:

- | | |
|----------------------------------|----------------------------------|
| U/812. Millers cucumber soap | W/2312. Taped rubber soles |
| H/2411. Ruddich hip belt | B/1312. Val formalin lamp |
| S/812. Sarco beauty treatment | S/2312. Vernico elastic stocking |
| E/2112. Standard Dielectric Oils | |

Observations and Reflections

By Xraysér III

Christmas Greetings

become more usual in business as the years roll on, and it is pleasant to have it so. Looking through the *C. & D.* advertisement pages I have observed how many important concerns have thought it worth while to devote space of considerable value to such greetings, and I would advise any of your readers who may be feeling at all "fed up" to spend a little time looking through those pages. It cannot fail to lighten their gloom somewhat, and it may impart a distinct air of cheerfulness. I was particularly struck with the page headed "Thank You," with its exceptionally cheerful strain. Like those responsible for this particular page, I thank you for all you are and compliment you upon the wonderful position you hold in trade journalism. I do not propose to give any further clue to the advertisement page in question, because I feel that it will well repay anyone to search for it and find it.

Useful Hints

are conveyed in your latest report of the proceedings of the Middlesex Pharmaceutical Committee (*C. & D.*, December 24, p. 794). I refer, of course, to statements respecting chemists' omissions to claim all to which they may be entitled when sending their scripts to be priced. As I have heard it remarked, if our accounts are to be discounted, it is just as well to make sure that every justifiable charge is noted when the accounts are sent in, because the bigger the total to be discounted the bigger will be the balance remaining after discounting. It is actually the case, I am informed, that many chemists have been regularly losing money through neglect to go carefully through their scripts and make all necessary and allowable claims.

It is Exasperating

to have doctors telling their patients that the medicine for which they are giving them prescriptions will cost much less than the chemists can afford to dispense the medicine for. Your quotation from a daily newspaper (*C. & D.*, December 24, p. 786) deals with a bad case of this kind, and it appears to me that this matter ought to be taken up seriously. It is worth considering whether some attempt should not be made to educate doctors on the subject of the cost of dispensing. Both the patient and the doctor in any case of the kind reported ought to be challenged by the chemist concerned and made to realise that they know nothing about values so far as the cost of specially dispensed medicine is concerned. I observe that the dissatisfied patient in this particular instance writes from Farnham, and I should like to know what the chemists of Farnham have to say about the matter.

Aspirin Stimulation

continues to be marked, and I am beginning to wonder if the consumption of this comparatively recent introduction to our materia medica can be really so great as to justify the spending of much money in pushing the sale of it. It seems truly remarkable to find so much attention being paid to a single drug, especially when there are so many well-known brands of the same product upon the market. You published last week (p. 799) two very sensible letters on the subject of the prevailing quarrel, and I also noted with interest what the two protagonists in this struggle have had to say of each other during Christmas week. The position is both instructive and amusing, but I am most impressed with the importance that great expenditure of money can attach to a comparatively simple and well-established remedy. Of one thing, we may be pretty certain; chemists who may be doing a big business in the much-advertised article, so long as the trade is literally thrust upon them, are not likely to be found pushing the sale of the article when the present newspaper campaign comes to an end.

The London Hospital

to which, according to a report appearing in "The Times" of December 8, has recently been granted a coat-of-arms, is an example of the philanthropic ferment which began to operate in the first half of the eighteenth century, and manifested itself in a tangible fashion in the founding of infirmaries in the Metropolis and also in provincial towns. The "London Hospital," or the "London Infirmary" as it was originally named, was, I think, the third in order of the London voluntary hospitals established in that period, the two antecedent ones being "Guy's" and "St. George's." The coat-of-arms, it appears from a statement made by the house governors, is intended to be significant of the origin of the institution. One of the chief features of it, namely, "three feathers erect," symbolise the Feathers Tavern, Cheapside, where the inaugural meeting was held on September 23, 1740. At that meeting, the minutes of which were quoted by Mr. Morris, it was reported that the lease of a house in Featherstone Street, Dog-Bar, had been taken for five years at a rental of £16 a year, and it was decided to build an infirmary as soon as £100 had been subscribed. Whether the Feathers Tavern meeting was actually the inaugural meeting seems to be a little doubtful, according to a letter from Dr. G. C. Peachey which appeared in "The Times" about a fortnight ago. He says there was an earlier meeting, but his letter does not disclose the date. The interesting point in the communication of the house governor is that it moves the locale of the initial building from Prescott Street, Goodman's Fields, to "Featherstone Street near Dog-Bar."

Featherstone Street

was some distance removed from Goodman's Fields, and may be identified, without any doubt, with the Featherstone Street of to-day, situate immediately south of Old Street. Its association with Dog-Bar is perhaps not so clear, because this name is unfamiliar to-day. There was an alternative name—Doghouse Bar. It was off a street (to the east of Featherstone Street) which has lost its name, or rather its name may have been discarded because of its gruesome origin; this was Windmill Hill, said to have been formed by a thousand cart-loads of human bones brought there from the charnel house of St. Paul's in 1549. Subsequent accretions of the city's refuse produced a mound which was considered to be a suitable spot for the erection of three windmills.

In the Regulations,

promulgated by the infirmaries and hospitals during the eighteenth century it is worth noting what importance was attached to the purchasing of drugs and the functions of the apothecary who was then the embodiment of pharmacy. The London Hospital had what was called "a physical committee" (I am taking this from an account published by its governors—published in 1759), which comprised all the governors "who practise physic, surgery or pharmacy, or are conversant in the knowledge of drugs or medicines"; they had "power to order and inspect the necessary drugs and medicines." The apothecary, who was provided with an assistant, constantly resided at the hospital, compounded and dispensed all the medicines, and attended to all the business in connection with the dispensary. A little time ago Mr. F. A. Hocking, who has been so intimately associated with the London Hospital for so long, stated that at the end of the eighteenth century the drugs and chemicals were obtained from the Apothecaries' Hall. The reputation which the Apothecaries' Hall sustained at that period was quite extraordinary. I have before me the rules of one of the largest infirmaries in the provinces, printed in 1791, and one of the rules is to this effect—"that all chemical and compound medicines, not prepared in the house shall be purchased from the Apothecaries' Hall in London." On the other hand, that free-lance of physic, John Wesley, gave as a final direction to his "Primitive Physic"—"I advise all in or near London to buy their medicines at the Apothecaries' Hall. There they are sure to have them good."

1928

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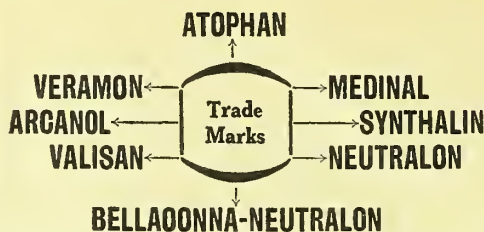
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Editorial Articles

A Year of Suspense

SOMEHOW the year 1927 conveys the impression of having been a period of suspense and uncertainty in the domain of pharmacy. This has been mainly due to the fact that, whilst nothing has been disclosed officially regarding the deliberations of the Government Poisons Committee, rumour has been busy, with its usual disconcerting effects, concerning the possible outcome of those deliberations.

The evidence submitted to the Committee by the Pharmaceutical Society remains as yet unpublished, but that submitted by the British Medical Association has been treated with less reserve, and **THE CHEMIST AND DRUGGIST** has been able to keep its readers fairly well informed respecting the course of events. When publishing the evidence submitted by the British Medical Association in these columns, occasion was taken to explain how matters appeared to be developing, and nothing has happened since to affect materially the views then expressed. It will probably be found that the more deeply the

GOVERN- Committee delved into the intricacies of the
MENT poisons problem, the less did there appear to
POISONS be reason for serious interference with the
COMMITTEE existing order of things. But progress is now
being made with the drafting of the report

of the Committee, and publication of the conclusions arrived at should not be long delayed after the close of this year. Whatever the recommendations of the Committee may be, it must be remembered that no material change can be brought about except by Act of Parliament, and that considerations of economy will almost certainly have the effect of checking any disposition to displace the Pharmaceutical Society from its well-deserved position as the central authority for the purposes of the Pharmacy Acts. Further, it is impossible to separate the sale and distribution of poisons from the practice of pharmacy; any attempt at even partial separation will almost certainly be fraught with grave risk to the public. Meanwhile, it remains necessary for the chemists and druggists of Great Britain to keep on the alert, prepared to defend their position. As an earnest of their determination to insist upon maintenance of their ancient rights and privileges, they have responded handsomely to the appeal for contributions to the Pharmaceutical Parliamentary Fund. There are widespread hopes that announcement may not be long delayed of the selection of one or more likely candidates for seats in Parliament, who are fully imbued with the justice of the claims of pharmacy and can be depended upon to argue convincingly when those claims are in dispute. Some impatience has been manifested

PHARMA- because of the lack of information respecting
CEUTICAL the doings of the Parliamentary Fund Com-
PARLIAMEN- mittee. Whilst it would obviously be impoli-
TARY FUND tic to disclose publicly what steps are being taken to ensure judicious disbursement of the moneys accumulated, it is not unreasonable that subscribers should look for some signs of activity on the part of the Committee. But no evidence is forthcoming of anything whatever having been done since the end of May, though everyone was being feverishly urged to subscribe before that date and the assumption was naturally encouraged that some immediate action was contemplated. Subscribers wish to be represented in Parliament, and that as speedily as may be, by men who are fully competent to explain their difficulties. When they are satisfied that suitable candidates have been selected and are being supported in a practical manner, they will not be slow to respond to fresh appeals. But they look anxiously for someone to come forward and take the lead in protesting on their behalf against the increasing tendency to legislate by departmental order. In this they have the sympathy of other sections of the community, all of which are kept in a state of suspense, wondering where will be the next point of attack by bureaucratic officials. During the past year there has been one particular direction in which the services of one or more members of Parliament would have been of incalculable benefit to chemists and

druggists. They feel that they have been badly let down in the matter of remuneration for National Health Insurance dispensing, but there has been no one in the House of Commons who was sufficiently interested to stress the point that the chemists are not obtaining a square deal. Whilst everyone else is being

paid in full for services rendered, chemists are once more being compelled to submit to discounting of their bills. The actual position, as the end of the year approaches, is that they find themselves having to face a cut of 20 per cent. from their dispensing fees for the whole of 1927. Since they were paid in full for the first seven months of the year, it follows that the whole of the discount must be deducted from the payments for the remaining five months. The reason for this extraordinary state of affairs, where the State appears to fail to meet its just obligations, is that there has been a steady increase in the supply of medicines to insured persons since 1923, and inadequate provision has been made to meet the rising cost. For some time any shortage in the money available was made good by Exchequer supplementary grants, but recent Government policy has been to make a fixed allowance meet an uncertain demand. This principle was confirmed by legislation last year, when the Economy Act provided a total amount of thirteen shillings per insured person for the entire cost of medical benefit. Out of this thirteen shillings must be met all other charges, including doctors' capitation and Insurance committees' administration, before the drug bills are paid. Accordingly, it is only the residue left over which is available to pay the chemists' accounts. It had been assumed that this residue would suffice, but the experience of January and February of this year made it clear that the money available for the whole of 1927 would not prove anything like sufficient. When, therefore, the chemists' representatives approached the Ministry of Health with a request that the dispensing fees should be increased, they were met with the counter-suggestion that there should rather be a reduction in the fees. As an alternative, the Ministry offered to hand over all the money available, provided the chemists would accept the risk, and it is on this basis that the business is now being conducted. Apparently the result of the first year's working under the new conditions is much the same as it would have been if the Ministry's suggestion of reduced dispensing fees had been acted upon, but it is hoped that the tide will turn and chemists be able to recoup themselves during the next few years. The Retail Pharmacists' Union and the British Medical Association are to collaborate in the attempt to induce doctors to economise in prescribing, but the lack of much-needed interpretation of what are "proper and sufficient" drugs and medicines makes the position one of extreme difficulty. If doctors may continue to order what they like and chemists must be content with what they can get, there would appear to be little hope of remuneration for National Health Insurance dispensing being materially improved during this generation. The remedy for such a state of affairs is obviously publicity, and there is no better form of publicity in matters affecting the public health than by having the case presented to Parliament in an adequate manner by competent advocates. As matters now stand, chemists may, with luck, recover in the course of a year or two the amounts deducted from this year's accounts; but it can only be by satisfactory presentation of their case in Parliament that they can ever hope to secure proper recognition of the services they render as the nation's dispensers. Still another direction in which direct Parliamentary representation could prove of advantage to

pharmacy is in connection with the preparation of new issues of the British Pharmacopœia. This is the only country where direct participation of pharmacists in such work is excluded, though the great bulk of the work which is utilised for bringing the Pharmacopœia up to date is done by pharmacists. A notable example of this was provided by the paper in which Mr. J. H. Franklin showed what improvements could be effected in British Pharmacopœia preparations. It is well known that the General Medical Council has always been largely dependent upon pharmacists for revision work, but disinclination to accord pharmacy direct recognition upon the Pharmacopœia Committee has been manifested continually.

PHARMACEUTICAL SOCIETY'S ACTIVITIES

Repeated protest by the Pharmaceutical Society proved to be in vain during many years, but at last more emphatic protests have led to a Government inquiry into the matter, and the result is likely, it is understood, to satisfy pharmacists. This result might have been attained earlier if pharmacy had been represented in Parliament, and such representation may still be found desirable if legislation be required to fix matters upon a proper basis. Meanwhile it stands to the credit of the Pharmaceutical Council that, by the firm action it took last year, public attention became focused upon the question of pharmacopœia revision, and reform much needed in the public interest is likely to follow. As a matter of fact, the work of the Pharmaceutical Council generally continues to reveal indications of the renewed vitality to which we were able to refer with approval a year ago. It is apparent that the members of the Society are satisfied this is the case. At the annual meeting in May there was no serious criticism to report, and the whole of the retiring members of Council were returned in spite of a lively and vigorous attack by candidates whose claims for support might well have appealed to a dissatisfied electorate. A further increase in membership of the Society was recorded, registration statistics continued to boom, and money appeared to be available without stint for anything that was necessary. A notable event was the unanimous election at the first meeting of the new Council of Mr. Herbert Skinner as president and Mr. Parry as vice-president. It would be difficult to suggest a more popular choice for the chief office, and the Council did itself honour by thus recognising Mr. Skinner's claims to distinction. By general assent both the new officers have since continued to merit approbation by their conduct of affairs. Mr. Skinner's devotion to duty was particularly manifested during a prolonged holiday trip to Canada and the United States, since he spent a considerable portion of his vacation in making investigation into the condition of pharmacy across the Atlantic and in cementing the bonds of friendship which he found already in existence. During the year, the Society's new Pharmacological Laboratories have been steadily at work, and it is understood that they are as steadily expanding. As a further indication of the Council's intention to maintain the Society's reputation in the front rank of bodies interested in scientific developments, reference may be made to the decision made at the December meeting to publish a quarterly journal of pharmacy and the allied sciences. It is understood that this proposed publication is intended to replace the familiar "Year-Book of Pharmacy," all the special features of which will be retained, with the addition of original matter of scientific and technical interest. The British Pharmaceutical Conference was held at an earlier date than usual, Brighton being the place of meeting during the last week of June. This was the third occasion on which Brighton has entertained the Conference, and the pharmacists of the

district treated their visitors royally. Mr. D. Lloyd Howard was again the chairman, and once more furnished an admirable address, his subject being modern developments in chemical plant. The papers contributed on this occasion were fully up to the best Conference standard; however, although the attendance was gratifying and there was a big gathering of pharmacists and their women-folk from all parts of the country, their interest did not appear to tend in the direction of scientific research. The meeting of delegates from branches of the Pharmaceutical Society attracted greater attention, and Mr. Herbert Skinner presided with dignity over the deliberations. A thought-compelling address by Dr. J. H. Burn, director of the Society's Pharmacological Laboratories, dealt with the training of pharmacists, with particular reference to their future position in the health service of the country. The programme outlined by Dr. Burn was ambitious, and more will doubtless be heard about his proposals in the immediate future. Most popular of all the Conference functions were, of course, the social events. Regarding these, it is sufficient to state that Brighton once more scored a great success as host and entertainer. At the reopening of the School of Pharmacy in October, Dr. Henry delivered a remarkable address, in which he dealt appreciatively with the contributions of the Pharmaceutical Society to education and research. This occasion was also noteworthy for Professor Armstrong's slashing criticism of those who would deprive pharmacists of the title "chemist." In Ireland both the Pharmaceutical Societies have continued to make progress, the older Society adapting itself bravely to altered conditions, whilst its Northern offshoot has made wonderful headway for so young a body. The Retail Pharmacists' Union has been very busy R.P.U. AND during the year, its Executive being troubled P.A.T.A. with much service. Reference has already been made to the negotiations conducted by the Union in respect of National Health Insurance dispensing. An advertising scheme described at a meeting of the Executive is designed to encourage displays of the usual chemists' drugs and toilet lines, excluding proprietary articles. Photographs of the best displays in each area are to be compared and prizes awarded. The displays are to be seasonal, and suitable advertising matter is to be provided by the R.P.U., whilst it is suggested that there should also be available for distribution copies of a small pamphlet setting out the qualifications of the pharmacist, the importance of purity in drugs and chemicals, and the fact that the pharmacist is the person best qualified by his training and special knowledge to sell such articles. Whatever may be thought of the details of this scheme, commendation cannot be withheld from any serious attempt to protect the public health by confining the sale of all substances used for medicinal purposes to chemists and druggists, as is the case in practically every other civilised country. The Proprietary Articles Trade Association has suffered grievous loss by the death of its creator, whose wise counsels would have been of incalculable value to the organisation he built up had he survived to advise on recent developments. A price-fixing dispute has been decided by the Court of Appeal in favour of manufacturers who sued a retail dealer for selling their product at a lower price than that fixed by agreement. The defendant alleged that the agreement was in restraint of trade, contrary to public policy, and imposed on him a greater restriction than was reasonably required for the protection of the plaintiffs. The latter, however, were granted an injunction by Mr. Justice Astbury, who held that it was in the interests of the purchaser as well as the plaintiffs that a reasonable price should be main-

tained if possible, and that the contract was not a general restraint of trade. It was a restraint in respect of a particular article which the defendant was under no obligation to purchase, and the public was liable to suffer quite as much injury from unfair dealing as from such restraint as was implied in an agreement of this character. On appeal by the defendant, the original judgment was upheld, the Court of Appeal, by a majority of two to one, deciding that a manufacturer is entitled to fix the price at which his product, not being an indispensable commodity, is to be sold to the public. It was also held that the manufacturer has a right of action against any customer who breaks an agreement to maintain the fixed price. Meanwhile, the Commissioner appointed by the Canadian Government to investigate charges against the Canadian P.A.T.A. of being an illegal combine has found that the charges are maintained by the evidence, and that the P.A.T.A. is an organisation operating in restraint of trade and against the interests of the public. Though the position in Canada has no direct bearing upon the position in this country, it seems obvious that price-maintenance arrangements in Great Britain may at no far distant period be brought under serious review. A Pharmacy Act appeal case in Edinburgh turned

LEGAL DECISIONS upon the meaning of Section 3 (1) of the Poisons and Pharmacy Act, 1908. The Pharmaceutical Society claimed that the defendant had committed an offence under that Section because he was absent from his pharmacy when a poison was sold there by an unqualified assistant, but the case was dismissed and an appeal to the High Court of Justiciary failed. What the Society endeavoured to establish was apparently that absence of the proprietor from the pharmacy was equivalent to the business not being *bona-fide* conducted by him, but there was no charge to the latter effect in the Society's claim, and the High Court found that what the chemist was charged with was not an offence under the Act. Another stage in the history of Sale of Food and Drugs Acts administration has been marked by a decision of the Court of King's Bench, to the effect that, in the absence of evidence to the contrary, the Court which is hearing a case must accept any standard adopted by an analyst on his certificate, even though no official standard of quality may exist. In the case under consideration, a preparation sold as "Extract of Meat and Malt Wine" was certified to contain 81.2 per cent. of water, 16.4 per cent. of sugars, and 2.4 per cent. of other extractive matter. Further, the analyst's certificate stated that "a genuine meat and malt wine should contain at least 5 per cent. of a mixture of equal parts of meat and malt extracts with a wine basis." But the magistrate who originally heard the case dismissed it, on the ground that there is no legally fixed standard. On appeal, however, the High Court returned the case to the magistrate to convict because, though there was no legally fixed standard for the preparation, there was evidence before him—unchallenged by the respondent—which would allow him to arrive at a reasonable standard of quality of the article in question. Absence of any official standard of quality for a preparation can thus be overcome by acceptance of the analyst's figures suggesting a standard, provided the statement in the analyst's certificate is not challenged by the defendant in the case. That is to say, the official analyst's certificate is to be accepted as conclusive unless notice is given to the contrary, and the analyst is required to attend for cross-examination. As a result of neglect to challenge the analyst's certificate in this case, an arbitrary standard for meat and malt wine has been set up, and the obvious moral is that it will henceforth be necessary to be con-

tinually on the watch to prevent further results of this nature. Uncertainty regarding the sale of medicated wines by chemists has resulted from the decision in a case where a chemist was fined for selling Wincarnis with Quinine, he not being holder of a wine licence. On appeal, the High Court held that the conviction was right, but the decision was such that it virtually leaves it to each bench of magistrates to decide what is or is not a wine or a spirituous mixture made up as a medicine. As a safeguard, we have advised chemists who do not hold wine licences to see that medicated wines they offer for sale are fully medicated, and preferably also to refrain from describing the preparations as wines. Dangerous Drugs Acts cases against chemists at Hull and Barnsley made clear the importance of observation of apparently trifling technicalities, such as marking on prescriptions the dates when they were dispensed, entering particulars of purchases in registers, copying prescriptions into prescription-books, and ensuring that all prescriptions are in proper form. Some of the cases reported revealed that lack of common-sense which is only too frequently noticeable in the administration of Dangerous Drugs Regulations, but the moral to be drawn from all of them is that it is wiser to comply with all technicalities rather than ignore them. In a subsequent case, at Cambridge, a limited company trading as chemists pleaded "Guilty" to a charge of aiding and abetting a person to obtain morphine unlawfully, when it was supplied by an assistant to whom irregular prescriptions were presented. This is the first occasion on which an attempt has been made to render a limited company criminally responsible for misdemeanour, and, as such, it is obviously of importance. The Merchandise Marks Act, 1926, came into force on June 15, 1927. Its chief aim is to prevent the sale of foreign or Empire products as British. If, therefore, such products are marked after importation with the names or trade-marks of British firms, or in any way to suggest that the goods are of British make, they are now required to be also clearly marked with an indication of origin. An exemption has been made in favour of uncompounded drugs which are sold for medicinal purposes, provided they are not offered for sale under a proprietary name. Regulations under the Therapeutic Substances Act, 1925, came into force on August 6. They affect substances the purity or potency of which cannot be adequately tested by chemical means, including serums, vaccines, toxins, antigens, salvarsan and its derivatives, insulin preparations and pituitary injections. Anyone who sells or has in his possession for sale any such substance known to be made or imported in contravention of the Act or Regulations made thereunder, is liable on summary conviction to a fine not exceeding £100, in addition to forfeiture of the goods. Much food for thought is provided by the possibility of digitalis, ergot, male fern and vitamins being likely additions to the list of substances included in the schedule of therapeutic substances affected by the Act, but chemists are probably safeguarded by the fact that conviction for an offence is contingent upon knowledge of the contravention being proved. A shop hours inquiry has been held during the year, and evidence was submitted by the Retail Pharmacists' Union, a very desirable course of procedure in view of what was stated respecting the chemists' business by other witnesses. The object of the inquiry is to ascertain whether or not it is desirable that the Shops Acts of 1920 and 1921 should be made permanent, and if so, whether or not there should be any modification of existing provisions. The Optical Practitioners (Registration) Bill was the subject of comment in our columns, when it was stated that the Bill formed a good com-

mencement of the State recognition of opticians, besides promoting a professional code of ethics and increasing the respect of the public for those who practise sight-testing. In this Bill the chief clause provides for legal qualification of persons who may be registered as opticians, as well as for the publication of an annual register. An endeavour to govern and protect the retail distribution of photographic goods is the basic object of a proposed Joint Association of Photographic Manufacturers and Dealers, but we have pointed out weaknesses in the scheme for restricting the number of retail dealers who may be supplied. Whatever may result in the direction indicated, it should be insisted that chemists and druggists are entitled to preferential treatment, and that qualified assistants who have an excellent knowledge of the art of photography should not be unreasonably debarred from membership of the Joint Association when they start business on their own account. Among the events of the year there have been a few of special interest. On Mr. Herbert Skinner's return from his transatlantic tour he was

A MERITED TRIBUTE entertained at a complimentary dinner organised by the chemists of North London, who are in a particular sense his own

people. But support was also rendered on this occasion by Mr. Skinner's familiar friends in all parts of the metropolitan area, together with some from greater distances. The object of the gathering was not only to celebrate Mr. Skinner's election to the presidency of the Pharmaceutical Society, but also to manifest to him the great esteem in which he is held and the affectionate regard felt for him by those for whom he has worked for so many years. The dinner was a complete success in every way. Another event in the nature of a record was the granting of the new London degree of Bachelor of Pharmacy for the first time. The pioneer graduate was Miss Phyllis Sully, who thus enables women to claim to have beaten mere man once more. Curiously enough, Miss Sully is not entitled to call herself a pharmacist, since she has not fulfilled the requirements for registration as a pharmaceutical chemist or a chemist and druggist. But that does not detract from the distinction she enjoys of being the first graduate in pharmacy of London University. Ireland is entitled to notice in respect of the wonderfully successful annual dinner. This function was attended by the Governor-General, and there was a very large attendance of "people who count" in Dublin. Mr. Victor E. Hanna, the experienced organiser of the dinner, was subsequently presented with a case of cutlery as a token of appreciation of his efforts. Our own great important event was the production of the Annual Special Issue of the *C. & D.* We are justifiably proud of that issue, which must be regarded as the culminating point of the remarkable work accomplished in trade journalism by our late lamented Editor. He had planned it most carefully long months in advance, and he was at great pains to ensure a collection of interesting articles on topical subjects. But he was at even greater pains to arrange for the wonderful illustrations in what must be regarded as his masterpiece, and our finest production. Other *C. & D.* activities are very familiar to our readers, who will, we think, admit that their favourite trade paper is continually on the alert to improve the position of chemists and druggists, and guard them against encroachment on their rights and privileges. Our record of work accomplished during a period of suspense and uncertainty must end with a reference to those for whom such periods are at an end. First in our list of the

OBITUARY notable departed we naturally place our late colleague, Mr. S. W. Woolley, whom Fate untimely removed shortly after his retirement from the editorial chair that he had adorned for so many

fruitful years. Owing to his retiring disposition, Mr. Woolley was not so well known personally to those outside, but he was always accessible to chemists who sought his advice and assistance. He finished his career as a pharmaceutical journalist on the highest point of excellence that has yet been reached in the production of special issues of trade papers. Sir William Glyn-Jones, whose positions and work need no reference here, had a longer warning of the approaching cessation of his activities and had prayed that he might die in harness, preferably fighting to the end for the good of his friends in the craft. His prayer was answered and he passed away during a struggle to extend across the Atlantic benefits which had accrued to chemists and druggists as a result of his earlier work in England. Dr. F. B. Power was well known in London, where he was for many years director of the Wellcome Chemical Research Laboratories. He was particularly noted for the precision and accuracy of his records of chemical investigations. Mr. S. W. Fairchild, of New York, was known here as a benefactor of pharmaceutical students, many of whom profited by competing for the Fairchild Scholarships. Mr. H. J. Fisk was an American who had spent most of his business life in England and regarded his firm's business in this country as being quite a British affair. Possessing a charming personality, his friendship was highly esteemed, and those who knew him intimately are oppressed with a deep sense of loss. Mr. J. J. Jackson was the senior director of Chave & Jackson, Hereford, and formerly a well-informed and vigorous contributor to the *C. & D.* Mr. Harry Hickey had been with Parke, Davis & Co., as a representative for thirty-five years, and he was well known by pharmacists all over the country. Mr. Isaac T. Lloyd, of Chelsea, was a pharmacist of the old school, and a man well worth knowing. Mr. E. J. Woolley was chairman of James Woolley, Sons & Co., Ltd., Manchester. Mr. F. Stokes Dewson, of Birmingham, was formerly a successful teacher. Mr. Cotnam Fields, of Stamford, enjoyed the distinction of having been the apprentice-master of the late Mr. S. W. Woolley. Dr. A. W. Crossley was at one time professor of chemistry at the School of Pharmacy. Dr. Ira Remsen was the author of chemical textbooks, which were used largely in this country some years ago; a distinguished American teacher, he had for some time past been an honorary member of the Pharmaceutical Society of Great Britain. Mr. Robert Aitken was the senior partner of H. C. Baidon & Sons, Edinburgh. Mr. A. H. Cox was chairman and managing director of Arthur H. Cox & Co., Ltd., Brighton. Mr. David Ross was senior partner of William Paterson & Sons, Aberdeen. Mr. William Yule was managing director of John Thompson, Ltd., Liverpool. Mr. Harry Kemp had been a leading Manchester pharmacist, and formerly took an active part in the affairs of the craft. Other deaths it has been our mournful duty to record include those of Mr. Leo. Atkinson, London; Mr. Robert Cambridge, Carrickfergus; Mr. A. E. Chaston, Winchester; Mr. John Cumming, Crewe; Mr. T. T. Cussons, Manchester; Mr. Charles Edward Fox, Bethnal Green; Mr. S. R. Powell, London; Mr. Arthur Pain, Felixstowe; Mr. Isaiah Parkinson, Burnley; Mr. J. R. Reith, Culter; Mr. Alfred Wigginton, London. Reverting to the death of Mr. S. W. Woolley, we are reminded that he began his first editorial article this year with the following almost pathetic words: "We do not know what the New Year has in store for us, and, perhaps, it is as well that it is so. This uncertainty, however, does not prevent us from working for the improvement of conditions which we know to be imperfect, and if we cannot complete the work, leaving it in such a state that it can be readily continued by others." This is what he himself did, and it seems fitting that we should end our review of the year's work on this note.

THE MINISTRY OF HEALTH HAS INVENTED A USEFUL METHOD OF PAYING ITS BILLS.

MINISTRY OF HEALTH
Pay The Pharmacist
£..... LESS 15%

BY THE TIME THE YOUNGEST LIVING PHARMACIST REACHES OLD AGE —



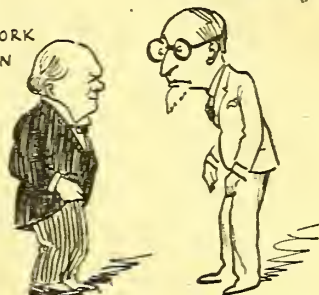
HE MAY POSSIBLY HAVE MADE ENOUGH NET PROFIT OUT OF N.H.I. TO BUY HIMSELF A BATH CHAIR.



AS THIS METHOD HAS BEEN OFFICIALLY ADOPTED BY A GOVERNMENT DEPARTMENT WE VENTURE TO COMMEND IT TO THE CHANCELLOR —



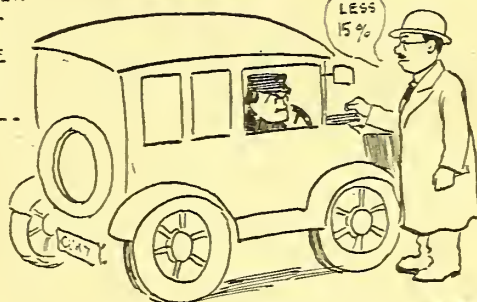
WHO MIGHT TRY TO WORK IT OFF ON OUR AMERICAN FRIENDS IN THE MATTER OF OUR LITTLE WAR DEBT.



AND AS N.H.I. DISPENSING IS A BRANCH OF THE CIVIL SERVICE, WHY NOT TAKE A SIMILAR DISCOUNT OFF THE SALARIES OF ALL OTHER CIVIL SERVANTS?



IT IS OF COURSE OPEN TO THE PHARMACIST TO ADOPT THE SAME SYSTEM IN PAYING HIS TAXI DRIVER..



ALSO HIS INCOME TAX.



AND HIS DRUG TRAVELLERS,



NOT TO MENTION THE GOOD LADY'S HOUSEKEEPING ALLOWANCE!



BUT

WE DO NOT RECOMMEND IT!



FOR THE ONLY PEOPLE WHO CAN DO THIS SORT OF THING AND GETAWAY WITH IT ARE BANKRUPTS, GOV. DEPARTMENTS. AND A CERTAIN TYPE OF BOOKMAKER.

GRANVILLE SHAW.

Pictorial Review of the Year

By Granville Shaw, Ph.C.

Pharmaceutical Society of Great Britain

Evening Meeting in Edinburgh

(Concluded from C. & D., December 24, p. 786.)

Notes on Pharmacopœia Revision, with Special Reference to Tests and Alkaloidal Solutions

By D. B. DOTT, Ph.C., F.I.C., F.R.S.E.

[ABSTRACT]

Regarded from what we may call the original point of view (to provide appropriate preparations of drugs as required by the physician and of ensuring uniformity of strength), the B.P. is in the main a good book, more easily readable, and less needlessly elaborate, than the American standard. Yet we must at once admit that our book stands much in need of revision, and that from no single source can so much assistance be obtained as from the U.S.P. There is often difference of statement, and sometimes dispute, as to solubility of a substance. The method by saturating a liquid in presence of excess of the substance at a given temperature, weighing a portion of the solution, and then determining the amount of solid therein, may be regarded as the more scientific method, and yet give quite a misleading result from the dispensing point of view. This arises because the compound exists in two forms, one of which is more soluble than the other. The B.P. solubility of 1 in 65 of water, for arsenious oxide has doubtless been derived from an actual determination, but 1 gm. will not dissolve in 65 c.c. of water at ordinary temperature; it needs over 100. A flagrant error in solubility is the statement that the *Emodi* resin of *Podophyllum*, has similar properties to that of *Peltatum*, i.e., it is soluble, or almost entirely soluble, in solution of ammonia; the truth being that by maceration with 100 parts of liquor ammoniæ for four hours, and frequent shaking, over 40 per cent. is left undissolved. The U.S.P. system of taking 25° C. as the standard for solubilities is apt to be misleading from a dispensing point of view. From a laboratory point of view 20° C. would be a more convenient standard. In later editions there has been a tendency to make certain of the tests needlessly exacting. Medicine does not require chemically pure reagents, but only what has been called "physiologically pure." For ether the fuchsine test for so-called methyl compounds might be omitted. Probably freedom from irritating odour, when evaporated, is the best practical test, as it also is for impurities in chloroform. The specific gravity should be 0.720-0.721 or 0.722. For reduced iron, the B.P. limit for insoluble in hydrochloric acid would exclude many good samples. Instead of 1, it is frequently 2 per cent. As it consists of carbon and silica, the limit might safely be raised to 2. With reference to alkaloids, I should like to emphasise the real risk of loss of alkaloid in solutions of atropine, or hyoscyamine, by the presence of too large an excess of ammonia, or by a slight excess reacting for a few hours. The new edition of the B.P. ought to contain a warning note on the point. Under cocaine hydrochloride the solution for the precipitation test might be 80 instead of 100, and yet be quite sufficiently exacting. Codeine base is still the favourite form, although a soluble salt such as the sulphate or muriate would really be more serviceable. The preference for phosphate is merely a medical fashion. As regards morphine salts, the neutral tartrate is sufficiently soluble for all purposes. Liq. morph. hyd. keeps perfectly with 3 per cent. acetic acid. There would be no real objection to even 4 per cent. The alcohol is quite unnecessary. Liq. strych. hyd. keeps with 1.5 per cent. acetic acid, or the liquor might be made by dissolving the alkaloid in water with acetic acid, using 0.83 instead of 1 part of the salt to make 100 vols. Solution of the acetate in water with slight excess of acid keeps well. In regard to assay processes, amylic alcohol may be replaced by chloroform in the benzene mixture for extracting the alkaloids of cinchona. In strychnine extraction from nux vomica preparations, caustic soda should be used instead of carbonate. For opium assay

the present process might quite well be retained, with some modification. In the first place, longer maceration of the lime mixture in a closed vessel is desirable. The idea of adding about 10 per cent. (vol.) of ether-alcohol to the lime filtrate, and then filtering from precipitate, is a neat process and removes considerable impurity, especially with an inferior grade of opium. But probably the same result is reached and even more completely by dissolving the precipitate as at present obtained in boiling 90 per cent. spirit, filtering, and titrating the solution. The direction to dry the morphine at 115° is quite superfluous. Some of the monographs might with advantage be amplified. Salicin might be modified, for example. A good identity test for salicin, which is more characteristic than the present sulphuric acid and potassium bichromate test, is to add one-fifth volume of hydrochloric acid to the watery solution and then warm. The solution becomes cloudy, develops an aromatic odour, and precipitates saliretin. On treating this with ether, evaporating the ethereal solution to dryness, an amorphous residue remains, which gives a red coloration with sulphuric acid.

The final paper of the series was:—

Solubilities and Standard Temperatures

By J. RUTHERFORD HILL, Ph.C.

[ABSTRACT]

In this country the U.S.P. is coming to be a book of reference in many retail pharmacies, and is doubtless in almost daily use in the laboratories of manufacturing chemists. It is said to be adopted as a standard in Canada by preference to the British Pharmacopœia. It may not be out of place to suggest one Pharmacopœia for the English-speaking world, produced by a Joint American and British Pharmacopœia Convention on the model of the existing American Convention. That would be a great step towards the attainment of an International Pharmacopœia which would be an immense boon and save much time and trouble and worry. There is a point of contrast between the B.P. and the U.S.P. which is of importance in connection with solubilities. The preface to the B.P. indicates the awkwardness of having two temperatures for the graduation of measures, namely, 15.5° C. for metric and 16.7° C. for Imperial. There is an important difference between the B.P. and the U.S.P. in the matter of temperature. In the B.P. all solubilities are taken at 15.5° C., while in the U.S.P. the standard is 25° C., and this is apt to lead to confusion in practice and in text-books, and may in certain circumstances be attended with real danger. In the German and Japanese Pharmacopœias the standard temperature for solubilities is 15° C., which is practically identical with the British standard. The bearing of this on solubilities may be seen by taking a few examples of solubility in water just at random according to the British (B.P.), Japanese (J.P.), German (G.P.), and American (U.S.P.) Pharmacopœias.

TABLE OF SOLUBILITIES

	B.P.	J.P.	G.P.	U.S.P.
Codeine phosphate	1 in 3.5	1 in 3.5	1 in 3.2	1 in 2.3
Morphine hydrochloride ..	1 in 25	1 in 25	1 in 25	1 in 17.5
Morphine sulphate ..	—	1 in 24	—	1 in 15.5
Strychnine nitrate ..	—	1 in 90	1 in 90	1 in 45
Boric acid ..	1 in 25	1 in 25	1 in 25	1 in 18
Potassium nitrate ..	1 in 4	1 in 4	1 in 4	1 in 2.8
Potassium permanganate ..	1 in 20	1 in 16	1 in 16	1 in 13.5
Magnesium sulphate ..	1 in 1	1 in 1	1 in 1	1 in 1.3
Potassium iodide ..	1 in less than 1	1 in 0.75	1 in 0.75	1 in 0.7
Sodium iodide ..	1 in less than 1	1 in 0.6	1 in 0.6	1 in 0.55

Of the alkaloidal solutions the most striking is strychnine nitrate. That a difference of 10 c.c. in the temperature should double the solubility seems unlikely, and one is inclined to suspect some error. In the case of magnesium sulphate the figures are the opposite of all the others, as if the solubility was less at the higher temperature. In the case of potassium iodide and sodium iodide the British Pharmacopœia monograph is

useless. To say that the solubility is "less than 1 in 1" is quite indefinite and of no practical use. This is a good example of the comparative indefiniteness and accuracy of the British as compared with the other Pharmacopœias. While the British is so indefinite as to be of no practical use, the other three Pharmacopœias give the solubility to the second place in decimals. It is commonly said that the temperature 15.5° C. is near the average normal temperature in this country, and is adopted because it makes the taking of specific gravities or the determining of solubilities easy in the laboratory. On the other hand, it is said that the average temperature in the United States is higher and that 25° C. is near the average normal temperature in that country. The speaker, by means of a table of temperatures in different areas, showed it is not correct for Britain, because the typical temperatures from the extreme North to the extreme South of Britain give an average maximum of 12° C. and an average minimum of 5.6° C., the mean being 8.8° C. This is very far short of 15.5° C. But it may be said these are outside temperatures, and the temperature of the laboratory will be nearly 15.5° C. An experiment showed that when the outside temperature was 6° C., the temperature in the laboratory was 10.2° C., and in a room where there had been a good fire all day it was 15° C. When one considers that the British Pharmacopœia is designed for use throughout the whole Empire, including India, Australia, South Africa and Canada, it is clear that any attempt to make the standard temperature conform to the normal temperature is quite impracticable. If in the United States it is considered necessary to adopt 25° C. because of the higher average temperature in that country, there seems an even greater reason for adopting a higher temperature for a British Empire Pharmacopœia. But in reality the standard 15.5° C. or 25° C. is quite an arbitrary figure, and for many reasons a common standard should be fixed.

DISCUSSION

MR. THOMAS WILSON said there was one point on which he would like to ask a question. Was there any reason why they should not have continued to make liq. bismuthi citratis by the old form, using bismuth citrate and dissolving by aid of ammonia instead of having to prepare the fresh citrate. The old form was easy, and he had an old sample which, on examination, answered all the B.P. requirements. Again, in reporting on a sample of methyl alcohol several students in the examination room reported it as ethyl alcohol because it answered to the iodoform test. He was having some acetone free methyl alcohol prepared that would be reliable as acetone-free so that he might repeat the experiment.

MR. DALL said Mr. Schorn had made reference to the Pharmacopœia preface, and in that connection there was another ambiguity. The preface stated that the symbol 3j. was used to represent sometimes 480 grains, and sometimes 437.5 grains. It was the general view among pharmacists that the symbol 3j. was meant to indicate 480 grains.

MR. RUTHERFORD HILL said he noticed Mr. Schorn suggested that the Pharmacopœia should contain a table of logarithms. He doubted whether the General Medical Council would accept such a suggestion. A small book of logarithms could be easily obtained for a few pence that suited the whole purpose in view. He entirely agreed with Mr. Dott's suggestion that they went to a needless extreme in setting limits for such things as arsenic and lead. In the case of arsenic, at least, there could be little doubt that in the small quantity present at the higher limit suggested by Mr. Dott the effect would be probably wholesome rather than deleterious. In the case of lead there might be a difference, as it was a cumulative poison, but, even so, the minute trace present in a medicine would not be likely to give rise to any trouble. Mr. Dott's suggestion of using acetic acid recalled the work done by Dr. Squibb, of New York, a good many years ago, where he showed that alcohol might be replaced by acetic acid in making many tinctures and extracts. The fact that acetic acid served the purpose as well as alcohol was important, and there seemed no reason why such a formula should not be adopted. The use of chloroform in place of amyl alcohol in the assay of cinchona would

unquestionably be much more comfortable to those who had to conduct the assay.

THE CHAIRMAN, in referring to Mr. Dott's communication, said he was struck by the remark that what was required was not chemical purity but rather physiological purity, and that was a point of some importance.

MR. CURRIE said he agreed with Mr. Dott's remarks about purity of chemical substances. Such purity was difficult to obtain, and so long as they got a substance which was reasonably pure for medicinal use, that should be enough. Certainly they should not insist on a degree of purity which added to the cost of the drug without any compensating advantage.

MR. PERRINS said under acetylsalicylic acid he had noticed that the test there for the presence of free acetic acid did not work in presence of a chloride or borax or tartaric or citric acid. The colour was altogether different, even when free salicylic acid was added. In the case of ether, he thought the aldehyde and hydrogen peroxide test should be added. The tests for ether were altogether too unreliable. He thought the B.P. must infer that the test for sublimed sulphur is to be applied to a washed sulphur because in the case of ordinary sublimed sulphur the test for acidity did not apply.

MR. KELLY said he thought the deletion of the name "Lin. Iodi" was a mistake. It was an excellent name for the strong solution.

MR. SCHORN, in replying, said he did not think there was any real objection to the use of bismuth citrate rather than preparing it fresh. The official process, however, could be carried out quite quickly by using three times the quantity of water.

MR. DOTT, in replying, said he thought that a temperature of 20° C. for taking specific gravities would be reasonable. Ash determination was an important matter. The real fact was that the limits were sometimes too stringent and the ash might vary or go beyond the limit without necessarily implying any serious defect in the drug. It would not be advisable to convert the numerous "traces" tests into quantitative determinations. It very rarely occurred that there was any business dispute over the question of what constituted a "trace."

Corner for Students

Conducted by Leonard Dobbin, Ph.D.

Communications should be addressed "Corner for Students, 'The Chemist & Druggist,' 42 Cannon Street, London, E.C.4."

Report on the November Analytical Exercise

(Concluded from O. & D., December 24, p. 793.)

TO CORRESPONDENTS

LAXEY.—Carbon dioxide could not be evolved when dilute sulphuric acid was heated with the residue left after igniting the powder in a dry tube, since no compound of carbon was present in the original mixture. Your supposed reaction for an oxalate must have been based upon some misconception.

ALTRAN.—Your report presents once more the strange misstatement that the neutralised sodium carbonate extract (which must have contained chloride) did not yield any precipitate with silver nitrate, whereas the portion of the extract acidified with nitric acid (which must likewise have contained chloride) yielded a precipitate of silver chloride.

KIWI.—You reported the presence of zinc upon evidence which was much too slender.

AJAX.—The chlorate and nitrate were responsible for the reactions that led you to report a hypochlorite.

DYER AND YTTRIUM.—It is not easy to understand how you could be satisfied from the behaviour of the powder that it consisted of potassium chloride only.

F. G. HOWELL.—Instead of a systematic analysis, including preliminary tests and definite examinations for metallic and acidic radicals, you have submitted a report upon individual tests, mostly of an isolated description and not arranged to include those for all of the commoner radicals. You will be well advised to adhere to the schemes laid down in any good modern book on analysis.

NICE.—Read the reply to "Dyer" and "Yttrium," and for "chloride" substitute "nitrate."

Associations' Winter Session

Birkenhead.—A meeting of the Birkenhead and Wirral Pharmacists' Association was held recently, the president (Mr. B. J. Cooper) in the chair. There was an excellent attendance. An address was given by Mr. T. E. Lescher, O.B.E., on *Pharmacy, Wholesale and Retail—Mutual Problems*. (An abstract of the paper appeared on page 681 of the issue of November 26.) In proposing a hearty vote of thanks, Mr. F. C. Cooling voiced the appreciation of all present. Before concluding the meeting, Mr. Cooper extended a cordial welcome to the president and other members of the Liverpool Chemists' Association who were present.

Blackburn.—A meeting of Blackburn and District Chemists' Association was held on November 30, Mr. J. Isherwood presiding. Mr. F. Law (secretary) read a letter from the Retail Pharmacists' Union concerning additions to the monthly price list; a resolution was passed disapproving of such additions. Another communication from the R.P.U. related to a suggested national advertising week. This was unanimously supported. Reference was made to a suggested window-dressing competition in connection with the same scheme, but a definite decision was deferred.

East Anglia.—The quarterly meeting of the East Anglian Federation of Pharmacists and branch of the Retail Pharmacists' Union was held at Peterborough recently, the president, Mr. S. G. Tydeman, in the chair. A vote of condolence was passed on the sudden death of Miss N. Swift, secretary of the Peterborough Chemists' Association. Mr. J. E. French, Sittingbourne, vice-chairman of the R.P.U., gave an address. The National Health Insurance position was dealt with, and the speaker appealed to chemists to back up the Union in its efforts to make the new scheme a workable one. He referred to the loss pharmacy had sustained in the death of Sir W. Glyn-Jones. A vote of thanks to Mr. French was carried.

Hull.—A meeting of the Hull Chemists' Association and R.P.U. Branch was held recently, Mr. R. F. Jones, chairman of the Branch, presiding. Mr. John Keall, member of the Proprietary Articles Trade Association's Council, and Mr. H. E. Chapman, general secretary of the P.A.T.A., gave addresses. Mr. Chapman, who dealt particularly with the administrative side of the P.A.T.A., described how the association dealt with cases of "cutting" reported to it. Mr. Keall spoke of the benefits derived from the P.A.T.A. price-maintenance system and contrasted conditions in the drug trade to-day with those of thirty years ago. The propaganda work which the P.A.T.A. was conducting was addressed to the younger members of the craft, and would, it was hoped, make them realise the importance of supporting the association. There were still a number of important proprietaries not on the P.A.T.A. list, and it was the duty of retail members to back up the efforts of the council. A discussion followed, and a vote of thanks to Mr. Keall and Mr. Chapman brought the meeting to a close.

Liverpool.—A lecture on *Some Industrial Applications of the Vitamins* was the subject of a lecture delivered by Dr. S. W. Willimott at a meeting of the Liverpool Chemists' Association on November 30. Mr. J. L. Hirst (president) introduced Dr. Willimott. Emphasising the necessity for concentrated sources of the different vitamins in feeding a population living under the complex conditions of modern civilisation, the lecturer dealt with the results of pure research. He said these had been applied successfully on a works scale by the manufacturer of foods and medicines, and a staple food, such as margarine, had now been fortified by the addition of fat-soluble vitamins. Lard, cooking fat, even honey, might before long have vitamins added to them in the course of manufacture. It was equally interesting to know that the time-honoured lime juice had been ousted in the favour of orange concentrate as an antiscorbutic for sailors. A discussion followed, amongst those taking part being Mr. Humphreys Jones, Mr. Prosper Marsden, and Mr. Wray. On the proposition of Mr. L. Moreton Parry, a vote of thanks was accorded to Dr. Willimott.

Sheffield.—A meeting of the Sheffield Pharmaceutical and Chemical Society was held recently, Mr. F. Hindle in the chair. A lecture was given by Mr. J. Roberts, Norwich, entitled *Newer Knowledge on Nutrition*. Mr. Roberts surveyed the foods suitable for the body, and dealt with the various vitamins. On the motion of the president, Mr. Roberts was accorded a vote of thanks.

Festivities

Staff Social Evenings

THERE was a good muster at the forty-second annual staff dinner of James Woolley, Sons & Co., Ltd., held at the Grand Hotel, Manchester, on December 16. Representatives from the warehouse and offices and the works attended, including the chairman of the company, Mrs. E. J. Woolley, and all the directors. An enjoyable musical programme, provided chiefly by members of the staff, ended a pleasant evening.

The staff of Kay Brothers, Ltd., Stockport, held a social evening on December 10, when a large party from the offices and works assembled at Crossley's Café. Whist and dancing were quickly in progress, the former directed by the secretary, Mr. Leah. Mr. J. Sexton, of the Works staff, acted as M.C., and prizes were presented by Mrs. Leah. Efficient arrangements which ensured a most enjoyable evening were made by the works manager, Mr. Dixon.

Social Evening at Southampton

THE Southampton Chemists' Social and Athletic Club held a whist drive and dance on December 14, at the Picture House Café. Whist was played until 10 p.m., and afterwards dancing continued until 1 a.m. During the interval for the distribution of prizes Mr. Young (president) gave a short address of welcome to the visitors. Altogether about fifty members and friends spent an enjoyable evening.

Bath Pharmacy College Ball

THE fourth annual ball of the Bath and West of England College and Pharmacy was held on December 16, when present and past students assembled to spend what was unanimously agreed to be a very pleasant evening. Mr. G. H. Moore was M.C. Prizes were awarded in dance competitions to Miss Edwards and Mr. P. Hulbert, also to Miss E. Olds and Mr. T. T. Cornish. Mrs. Williams, wife of the Principal who was also present, handed over the prizes. Mrs. Newton, Miss James and Messrs. L. Noble, H. J. Smith, R. Bailey, and S. Higgins, with Mr. G. H. Moore, formed the Committee.

Cheltenham Chemists' Dinner

THE annual dinner of the Cheltenham Branch of the Pharmaceutical Society was held at George's Restaurant, recently; about seventy sat down to dinner. The Mayor (Alderman C. H. Margrett, J.P., O.B.E.) arrived soon after dinner and was given a hearty welcome. The toast of "The Pharmaceutical Society" was proposed by Mr. C. K. Gregory, and in reply Mr. Melhuish (member of the Council) outlined some of the Society's activities, especially regarding education. Mr. J. H. Middleditch, B.Sc., head of the Scientific Department of the Technical School, proposed the toast of the Cheltenham Branch, and expressed Mr. Ivamy's regret that illness had prevented him from attending. The chairman (Mr. T. B. Wickam), replying to the toast, made reference to the forthcoming Pharmaceutical Conference in Cheltenham. "The Ladies" was proposed by Dr. Crossley Holland, whose witty speech and humorous stories were much appreciated by his audience. Mrs. H. Bnrton Clark replied. Councillor Harold Miller proposed "The Visitors," eulogising the work of the Mayor and paying tribute to the interest he took in the town's welfare. Alderman Margrett replied in happy vein, and promised the members of the Pharmaceutical Conference that they would get a hearty welcome. Mr. R. R. Bennett, B.Sc., F.I.C., chairman of the British Pharmaceutical Conference, also responded.

Insurance Act Dispensing

Record of matters concerning Chemists' interests in the National Health Insurance Acts.

ENGLAND AND WALES

Local Reports

Croydon.—A meeting of the Insurance Committee was held recently, at which it was stated that insured persons have increased as follows:—1923, 66,846; 1925, 69,245; 1927, 74,141. The panel doctors number 139, and the chemists 58 (76 shops). This is an increase of 17 doctors and 11 chemists' shops in a year. During the year the doctors received £29,820, and the chemists £10,393.

Darlington.—At a meeting of the Insurance Committee recently Mr. A. J. Best, chairman of the Pharmaceutical Service Subcommittee, said that he had noticed the remarkable degree of accuracy in dispensing which obtained generally in the area, and he was glad to assure the committee that every care was taken to see that the insured persons received what the doctor intended. Although the number of prescriptions issued this year had exceeded those of previous years, it was satisfactory to find that the high standard of dispensing continued. In the tests mentioned by the clerk the highest variation was only 1.8 per cent.

Derby.—At a meeting of the Borough Insurance Committee recently Mr. H. G. Pattison, chemist and druggist, raised the question of payments to chemists, and stated that they had been kept waiting two months and had received only 85 per cent. The clerk replied that under the pooling scheme the balance allocated would be paid as soon as it was known, and the chemists had agreed to accept it in a sporting spirit, even if it were not payment in full.

Derbyshire.—The annual report to the Derbyshire Insurance Committee states that last year 641,409 prescriptions were dispensed at a cost of £21,270 9s. 9d. paid to chemists, and, in addition, doctors received £5,890 13s. 2d. for medicines provided by them: forty-five doctors provided medicines for all their insured patients owing to there being no pharmaceutical service available. There are 199 chemists on the panel.

Devon.—A meeting of the Devon Pharmaceutical Committee was held at Exeter on November 23, Mr. W. W. Pine in the chair. The report of the Central Checking Bureau for June was approved. A letter was received from the Standing Joint Committee of the South-Western Panel and Local Medical Committees thanking the committee for their assistance in the revision of the South-Western Formulary. The Pharmaceutical Service Subcommittee reported that in two cases of errors by chemists in dispensing they recommended withholding £2 and £1 respectively from the remuneration. They considered there was no fraudulent intention in either case. This was approved.

Devon.—Mr. P. F. Rowsell presided over a meeting of the Insurance Committee recently. The Pharmaceutical Subcommittee reported having considered a case in which the Pricing Office referred back for verification a script included in a chemists' account which had been endorsed by the chemists to show a quantity supplied of 10 x 20 c.c. (4,000 units), whereas, as a result of correspondence, it was ascertained that the actual quantity supplied was 10 x 5 c.c. (1,000 units), a difference in cost of £3 4s. The chemists apologised for the error, and stated that the confusion arose by reason of the terms "c.c." and "units." The subcommittee informed the chemists that the matter had been brought to their notice and the error noted, and warned them to be more careful in future. The subcommittee had considered the analyst's report in another case, where the sample disclosed deficiencies as follow:—Sod. brom., 26.2 per cent.; ammon. brom., 20 per cent.; liq. arsen., 20 per cent. The analyst pointed out, however, that the mixture was dispensed in a 10-oz. instead of an 8-oz. bottle. The chemist stated that the mixture was dispensed by an assistant who had just completed a four-years' apprenticeship, and who failed to notice that the bottle was the

wrong size. The amount of liquor arsenicalis in the mixture was checked by a qualified man, who also failed to observe that the bottle was 10 oz. instead of an 8 oz. The subcommittee considered that the chemist had committed a breach of his agreement, but pointed out that there could have been no intention to defraud and that the discrepancy clearly arose out of the fact that the wrong-sized bottle had been used. The chemist was warned. The subcommittee had also considered the analyst's report in another case, where the sample disclosed the following discrepancies:—Sod. brom., 100 per cent.; ammon. brom., 13.6 per cent. excess; liq. arsen., 32.2 per cent. excess. The subcommittee considered that there had been gross carelessness, and recommended that the Ministry of Health should withhold £2. In another case investigated the following deficiencies were disclosed:—Ammon. brom., 11.2 per cent.; liq. arsen., 32.3 per cent. The chemist offered no explanation in the matter, nor had he taken any steps to have the reserve portion of his sample analysed on his own behalf. The subcommittee considered that there had been carelessness, and recommended that £1 should be withheld.

SCOTLAND

Terms of Service for 1928

Mr. J. Rutherford Hill, Edinburgh, informs us that the Scottish Board of Health, after consultation with parties interested, agrees to a continuation of the existing arrangements for Pharmaceutical service in Scotland for the year 1928.

Glasgow.—The Insurance Committee recently decided to surcharge a number of doctors in their area for excessive prescribing during 1925. Eight doctors appealed to the Scottish Board of Health, but the decisions of the Committee were upheld and the appeals dismissed with costs against the appellants. In the course of an explanatory statement the Committee remarks:—"In his decisions Sir James Leishman states that the procedure prescribed by the medical benefit regulations in respect of the investigation of the Panel Committee was regularly and properly carried out, and that the cost of the drugs and appliances ordered or supplied by the appellants was excessive owing to there being extravagance in character or quantity. . . . The Committee wish to emphasise that they desired the inquiry should be public, but by the expressed wish of the appellant doctors the Press was excluded. . . . The Insurance Committee has no desire to surcharge doctors, but it is not going to shirk its duties where it is proved that extravagant demands have been made upon the drug fund, of which it is the trustee, owing to wasteful prescribing on the part of a practitioner. That the prescribing by the doctors concerned was wasteful was conclusively proved at the inquiry."

Kirkcaldy.—At a recent meeting of the Insurance Committee the Medical Benefit Subcommittee reported that chemists' accounts for the eight months ended August 31 amounted to £1,032 1s. 10d., compared with £1,096 14s. 7½d. for the corresponding period of last year. The subcommittee were unanimously of opinion that the system which permits change of doctor at any time was liable to abuse, and recommended that the former system be reverted to, and change of doctor be only permissible half-yearly.

Lanark.—A meeting of the County Insurance Committee was held recently, at which it was stated that the number of insured persons in the area on October 1 was 112,722. A motion was received from the Coatbridge Burgh Insurance Committee urging that the former system should be reverted to whereby a change of doctor was only permissible half-yearly. The meeting, without discussion, agreed to adhere to the present system.

Roxburgh.—At a meeting of the County Insurance Committee, held recently, the clerk submitted a statement of the drug fund expenditure from January 1 to September 30, 1927, which amounted to £1,430 3s. 9½d., compared with £1,240 8s. 5d. in 1926, and £1,137 16s. 9d. in 1925.

Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, December 29

London Markets

THE Mincing Lane produce markets having been closed during the greater part of the week, our usual Trade Report section is devoted to a review of the pharmaceutical and industrial chemical trades throughout the year. A new price list for *methylated spirit* showing a reduction of 3d. per gallon comes into operation on January 2, 1928, and is as follows:—

In One Delivery	Industrial Methylated Spirit	Pyridinised Industrial Methylated Spirit	Mineralised Methylated Spirit (coloured violet)
	610.p. 640.p. s. d. s. d.	610.p. 640.p. s. d. s. d.	610.p. 640.p. s. d. s. d.
500 gallons and upwards	2 2 2 3	2 4 2 5	— — — —
100 " and under 500	2 3 2 4	2 5 2 6	3 3 3 4
30 " " 100	2 5 2 6	2 7 2 8	3 5 3 6
10 " " 30	2 7 2 8	2 9 2 10	3 7 3 8

Methylated resin finish is 2d. and methylated shellac finish 8d. per gallon extra over the prices quoted for pyridinised industrial methylated spirit. At the auction of *Cinchona*, to be held at Amsterdam on January 11, 1,309 packages Java bark, weighing about 53,690 kilos, will be offered. The demand for *Mercury* over the holidays has remained at a standstill, but the undertone seems quite firm. The chief holders here seem content to wait for further developments in the New Year, while first-hand offers from the Continent are still restricted, although it is believed that stocks in Spain are now assuming more important dimensions. The New York market is very steady at from \$127½ to \$128 per bottle, duty paid. Arrivals on this side are still comparatively light. In *Turpentine*, business has been neglected, but the undertone is fairly steady, in spite of the lack of new interest over the holidays. London deliveries for the past week were only 1,334 barrels, making a total since January 1 of 115,579 barrels, compared with 105,253 barrels for the same period last year. Stocks were returned at 57,370 barrels, against 43,887 barrels the same date last year. Including the landings and afloats, the total London visible supply amounts to 65,981 barrels, which compares with 56,745 barrels at the same date last year. The spot price was nominally 39s. per cwt. on Wednesday, January-April delivery being 40s. *Linseed oil* is easier at 28s. spot, 26s. 10½d. for December; 27s. 1½d. January-April; 28s. 1½d. May-August; Hull, spot 28s. 1½d. *Rubber* is fully steady at last week's advance, and a fair business is again passing. It would appear that certain dealers were of the opinion that the market would decline in consequence of the liquidation of the January position. So far there has been no pressure to sell near rubber, most of which has been absorbed at full prices. Furthermore, Eastern advices continue to report a firm market with shipments on a reduced scale. The statistical position is again satisfactory, and last week arrivals totalled 1,729 tons, whilst deliveries were 3,093 tons, showing a further decrease of 1,364 tons on the week. The London stock now stands at 63,397 tons, against 48,382 tons at the corresponding period last year. Quotations (Wednesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and January, 1s. 8d.; February, 1s. 8½d.; March, 1s. 8¾d.; April-June, 1s. 8¾d.; July-September, 1s. 9d. per lb. The *Clove* market statistics for the week ending December 24 show landings of 500 bales, and deliveries of 145, leaving a stock of 9,777 bales, against 7,733 in 1926, and 12,523 in 1925. From January 1 to December 24, 1927, the landings of Zanzibar in London were 17,385 against 11,709 in 1926, while the deliveries for that period were 15,309 against 13,176 in 1926.

Chemical Markets During 1927

In reviewing the chemical markets of the closing year, it would appear that the features worthy of comment are of a different character from those of former years. In the immediate post-war years the chief difficulties were fluctuating international currencies, strikes, lock-outs and general instability, all of which tended to make both production and merchandising something of a gamble. The experience gained during these difficult times is to some extent the cause of the developments that have taken place during the past twelve months. In former years even the largest and strongest of commercial undertakings found they could not proceed with sufficient certainty with their business in consequence of the continual swing of the pendulum for and against them. Spasmodic markets, continual changing of values of foreign currencies, world over-production, loss of former markets and new tariff barriers all tended to make the position for the individual concern impossible as regards meeting competition at home and overseas. The result was an almost general movement to form combines and syndicates. Examples of the former on a scale of national importance are now functioning in this country and on the Continent. Where actual fusion of hitherto competitive units has not been achieved, there has arisen a large number of conventions, syndicates, or, as they are commonly called in this country, "rings," which control output, distribution and sales prices. These movements have certainly had the desired effect of steadying the chemical markets of this country, and to no little extent the world position. While their formation some years earlier might have been of general benefit in a similar fashion, it is very doubtful if agreement between the various interests concerned would have been possible owing to the unsettled state of affairs generally. Combination, or at least co-operation, between groups of manufacturers is at present in its infancy, and is now on its trial. Time alone will tell if they are to stay with us and become permanent features. They will either pass as a phase in the post-war reorganisation of commerce or they will develop to the full extent of covering the whole industry. For the manufacturers concerned they provide that guarantee of stability which is essential to their welfare. Consumers may look upon these movements with some suspicion, and possibly not without cause. They may have to pay rather more for their supplies, they may be burdened with unfair contracts, and they will probably dislike having to place their orders on a market which is not competitive. Experience has shown that, however watertight a combine or syndicate may appear to have made the control of output and distribution, there is usually sufficient leakage to prohibit them from abusing their power. Ever since the co-operate movements commenced it has generally been possible to obtain reliable supplies of the products of the groups from outside sources and at keenly competitive rates. The groups have generally adopted the plan of selling direct to consumers, and in most cases refuse to sell to the independent merchant. While it may be practicable and economic for a group of national importance to sell direct to consumers, it is obviously uneconomic for manufacturers of a comparatively small output, confined to a few products, to do so. The latter class will no doubt continue to use the merchandising facilities for the disposal of their production. The fusion of a number of makers into one big concern has so far been largely limited to industrial chemicals, while the formation of syndicates, pools and rings has been the fashion in both the heavy and pharmaceutical sections.

A study of the table of price movements for six typical pharmaceutical chemicals sums up the general trend of prices throughout the year. There has been a very gradual and slight downward tendency, due mostly to exceedingly keen competition. In some instances these slight depreciations were checked by the introduction of a syndicate. At the opening of the year it was realised that prices were down to bare costs of production, and no further big cuts in value were anticipated; in fact, forecasts were made of small advances should the demand become active. However, at no time of the year has there been a prolonged period of active business, the

trade flowing steadily on limited lines throughout the twelve months. With isolated exceptions, and then only at brief intervals, did the market turn in favour of sellers. It has, generally speaking, been a buyers' market all the year, it being possible for consumers who knew their market to get a seller down to their figure. This has been the feature of pharmaceutical chemicals throughout the year. Keen competition on the part of half-a-dozen sellers for every buyer has meant that the majority of business was put through at something under the recognised market price. Foreign currencies have had little effect on the market compared with former years. Home makers appear to have held their own in the products they manufacture, and their output of so-called fine chemicals is now between £2,500,000 and £3,000,000 per annum. A number of the more important products, however, are not yet made in this country, so that they have had to be removed from the list of articles chargeable with Key Industry Duty on account of non-production. Phenacetin, phenazone, sulphonal, barbitone and a few others became free imports during the year, and it is noted that in all cases spot prices immediately moved down accordingly.

The industrial chemical industry of this country is, of course, healthy and on a sound basis, and it will be generally conceded first, or at least second, place of importance in the world. Both for the home and export markets competition has seldom been really serious. Importers have done their usual volume of business in products that are either not made here or not in sufficient quantities to meet requirements, while some items which were formerly fairly regular imports have failed to get a footing in this market against the home makers.

Labour conditions at home, for the first time since the end of the war, have been practically normal, and the outlook in this respect is good. The coming year is almost certain to see further development in amalgamations and the formation of groups and syndicates. The time may come when the world's production, prices and distribution of most chemicals will in this way become non-competitive, but such a position is not likely to be reached in the next few years.

For the present it is sufficient and satisfactory to be able to say that, even if the outlook is not exactly roseate, it promises to be rather better than in former years, and, provided there are no international complications and no big labour troubles at home, should be a year of steady trading, with the markets showing very little fluctuation.

Pharmaceutical Chemicals

A study of the closing prices table for the last four years truly reflects the general movement of this market during the past year. There has been but few exceptions to the gradual and very slight downward trend of prices, brought about by keen competition. The volume of business has probably been fairly satisfactory, but orders have mostly been in smaller quantities than usual, and sellers found that, if they wanted the business, their prices had to be very keen, allowing only the smallest of margins. There was at no time a really active period, the trade flowing steadily most of the year, with the usual falling off in the summer months. Merchants in imported products have well maintained their position, and continue to do the bulk of the business in a number of the more important products. Exports have been poor, most of the overseas business in products liable to key industry duty being shipped direct from the Continent. At the close of the year the general tone of the pharmaceutical market was very steady, and few changes are anticipated in the immediate future. Key industry duty was removed from imports of a number of products during the year, and it is interesting to note that in all cases the price on spot fell to the free import level.

ACETANILIDE opened the year at 1s. 7d. per lb., and by the end of February 1s. 6½d. was quoted, this price holding to the half-year, when the bottom figure for quantities was 1s. 6d., the year closing at that figure. ASPIRIN has been in good demand all the year, and British makers appear to have done the bulk of the business, their hold on the market during latter months being very evident. Prices opened at 2s. 5d. to 2s. 6d.,

with a slight appreciation in June-July. In September the market was at 2s. 3½d. to 2s. 4½d., and remained unchanged for the rest of the year. BENZOIC ACID (B.P.) opened steadily with a good business passing at 2s. 3d.; by May quotations were 2s. 2d., later moving to 2s. 0½d. and 2s. 1d. by gradual stages. Business for British make has been good all the year, the demand under the Food-stuffs' Preservatives Regulations being considerable. BARBITONE opened at 8s. 8d., declining to 8s. 3d. in March with the approach of free imports which operated that month, when dealers reduced their price accordingly to 6s. 4d. and 6s. 6d., and then to 5s. 10d., the year closing at 5s. 8d. to 5s. 9d. Business has been poor throughout, especially re-export. GALLIC ACID has been mostly unchanged throughout the year at about 2s. 8½d. to 2s. 9d. per lb. SALICYLIC ACID (B.P.) business has again been in the hands of home makers, whose prices at the opening of the year were at 1s. 4½d. to 1s. 4½d., later moving to 1s. 3d. by easy stages up to August, during which time business had been generally slow. Further weakness was recorded in October with 1s. 2½d. to 1s. 3d. quoted. In the closing month the tone was rather better, although business was still below normal, closing at 1s. 2½d. to 1s. 3½d. for quantities. Competition between home makers again seems to have been largely responsible for the unremunerative prices quoted. TANNIC ACID has shown little change during the year, opening at 2s. 7½d. to 2s. 10d., and closing at about these figures. AMIDOPYRIN opened very unsteady at 11s. 9d. to 12s., weakening to 11s. 6d. in February, and upon the removal of key industry duty on imports in March, was quoted at 8s. 6d. to 8s. 9d., closing at 8s. 4d. to 8s. 6d., which appears to be a low figure and likely to move up a little in due course. BROMIDES.—A very satisfactory amount of business can be recorded for the whole year, and it seems to have been fairly divided between importers and home makers, the latter in at least one case appearing to have made a big bid to secure good business. Prices have remained steady throughout, movements being confined to very slight and gradual declines. Ammonium opened at 2s. 1d. to 2s. 1½d., and by May was a farthing cheaper; October was quoted at 2s. 0½d. and November at 2s., closing at 1s. 11½d. to 2s. Potassium B.P. crystals and granular opened at 1s. 8d. to 1s. 8½d., and quickly moved up to 1s. 9d. and 1s. 9½d., and held at about these rates until March, and business had been good; very slight depreciations then came along, and by October 1s. 8½d. to 1s. 8½d. was quoted, closing at 1s. 8d. to 1s. 8½d. for quantities of granular and crystals respectively. Sodium B.P. opened at 1s. 10d. to 1s. 10½d., quickly moving up to 1s. 11d. to 1s. 11½d., and then declining to 1s. 11d. by June and to 1s. 10½d. in August, recovering to 1s. 10½d. to 1s. 11d. in October, and closing at 1s. 10½d. to 1s. 11d. per lb. for quantities. BISMUTH CARBONATE AND SUBNITRATE opened at 12s. 3d. to 14s. and 10s. 6d. to 12s. respectively, and continued unchanged until April, when there was a big drop to 9s. 9d. for carbonate and 7s. 9d. for subnitrate. In November an advance was recorded, the market being 10s. 4d. and 8s. 4d., at which figures the year closed with the market firm. CHLORAL HYDRATE opened at 3s. 3d., weakening to 3s. 2d. by March and to 3s. 1d. by June; the market then recovered to 3s. 2d. by August-September. In November, Continental makers' prices advanced and the spot value moved up to 3s. 3d. to 3s. 4d. per lb. for duty paid crystals. British makers' prices appear to have followed the market. CALCIUM LACTATE opened at 1s. 3d. to 1s. 4d., and by April had weakened to 1s. 2d.; September was quoted at 1s. 1½d. for quantities. Towards the close of the year the market tended to recover, the price being 1s. 1½d. to 1s. 2d. per lb. for quantities, with the higher price likely to govern the market in due course. CITRIC ACID has had a disappointing year, possibly on account of the cold and wet summer. Throughout the usual buying season business was never really active. Makers' prices, both home and foreign, were, however, steadily maintained, and second-hand stocks were for the most part the chief source of supply. Towards the end of the year the market was much steadier and better prices prevailed. Opening at 1s. 2½d. by March, foreign was up to 1s. 4d. and by June to 1s. 6d., and by August to 1s. 7d.

These prices were quoted, but a good volume of business was probably done at a discount on these rates. In September 1s. 6½d. to 1s. 7d. per lb. for quantities, and the market closed steady but quiet at these rates. B.P. CREOSOTE opened at 1s. 9d. and continued at this figure to July, when 1s. 8½d. was quoted; in the closing months 1s. 8d. to 1s. 8½d. was taken for important business. CREOSOTE CARBONATE in January was offered at 6s. to 6s. 2d. and weakened to 5s. 10d. to 6s. in May, and was a further penny down by July, closing at this figure for quantities. GUAIACOL CARBONATE opened at 6s. 9d., weakening to 6s. in early March and then falling to 5s. to 5s. 3d., when the import duty was removed the same month, closing at 4s. 9d. to 4s. 11d. per lb. Business has been limited throughout. HEXAMINE has shown little fluctuation during the year, although the market has been a very competitive one with some important sales of quantities at keenly cut figures. A good business has been done, but the margin of profit in most cases has been extremely small. Opening at 2s. 4½d. to 2s. 5½d., the market fell a halfpenny by May-June. In July the price, owing to keen competition, was down to 2s. 3d. to 2s. 4½d., and the market continued to be quoted at these figures for the remainder of the year, although for exceptionally large business 2s. 3d. is said to have been shaded for powder. Proportionately higher prices are quoted for best brands of free running crystals. HYDROQUINONE had a quiet period in the early months of the year, with buyers holding off pending removal of import duty, which took place in July. Opening the year at 3s. 11½d., in April the quotation was 3s. 10½d., and in May-June spot supplies were very scarce with prices touching 4s. In July, free import brought the price down to 3s. 1d., and in August to 2s. 11d. to 3s. In November, with quite good business passing, 3s. was asked and obtained, the market holding at this figure up to early December, when, as the result of the formation of a convention of makers, a considerable advance on the Continent was notified, bringing the spot value to about 3s. 9d. to 3s. 11d. per lb. The advance at the end of the year affects the world's markets and seems likely to be permanent. METHYL SALICYLATE seems to have had a poor year, and at no time has the market been really active and strong. January's quotation was 1s. 6½d. to 1s. 7d., with 1s. 6d. to 1s. 6½d. the average figures during the summer. In October, on a sluggish market, some offers were down to 1s. 5d., picking up to 1s. 5½d. to 1s. 6d. in November, closing steady but quiet. METHYL SULPHONAL was quoted in January at 15s. 3d. with very little moving, pending removal of import duty, which took place in March, when the spot value dropped to 10s. 9d., reaching 10s. 6d. in June, 9s. 6d. in August, and down to 8s. 9d. in October. In late November the position improved to 8s. 11d., the year closing very steady at 9s. to 9s. 3d. Continental to arrive will cost fully 9s. 4d. spot on present works' prices. A fair business has been done, but cheap sellers spoil the market. PARA-FORMALDEHYDE (100 per cent. powder) from January to June was steady at 1s. 8½d. to 1s. 9d. At the half-year large quantities were quoted at 1s. 8d. to 1s. 8½d., and these prices were maintained for the remainder of the year. An application to remove import duty was rejected by the Board of Trade. PHENACEIN gradually weakened in the first three months of the year from 3s. 10d. and 3s. 11d. to 3s. 9d. and 3s. 10d. Business was small until the removal of import duty in March, when spot was quoted 3s. and 3s. 2d. From that time up to November the market gradually moved down and reached 2s. 6d. and later 2s. 5d. for large quantities. Competition has been exceedingly keen all through, but it is difficult to see how the market can move to prices below the closing ones of 2s. 5d. to 2s. 7d. per lb., as to quantity. PHENAZONE, owing to some scarcity on spot, advanced during January from 5s. 9d. to 6s., to be followed by weakness with the approach of relief of duty on imports, moving down to 5s. 9½d., and upon becoming a free import, spot values fell in March to 4s. 6d. to 4s. 9d. By May 4s. 4d. to 4s. 6d. had been reached, by June 4s. 3d. upwards, this figure standing till the middle of September, when 4s. 2d. was quoted, to be followed by 4s. 1d. and ultimately 4s. for large quantities, with some sellers at 3s. 11d. The low figure at the close of the year and the gradual fall during

the last three months was due to keen competition. PHENOLPHTHALEIN opened at 6s. 3d. to 6s. 6d., and with competition between dealers' prices fell during the early months of the year to 5s. 11d. to 6s. 1d., and these rates continued up to August. In September a convention brought prices up to 6s. 6d. to 6s. 10d., and as second-hand stocks were cleared these prices began to be effective towards the close of the year. POTASSIUM PERMANGANATE (B.P.) was selling very cheaply up to the end of March round about 6d. per lb. Efforts were then made to form a convention, and prices gradually moved up to 6½d. by July, and this price held steadily till the key industry duty was removed at the end of November, when spot was quoted at 5½d. to 5¼d. Prices are not likely to go lower, while an advance may easily take place in the early New Year. RESORCIN has been irregular on quotation all the year. Opening at 4s. 3d., prices gradually moved down to 4s. by June, and during the following months to 3s. 9d., while some sellers were still asking 3s. 11d. to 4s. At the end of November key industry duty was removed and spot fell to 2s. 11d. to 3s. 1d. SALICYLIC ACID (B.P.) has had a poor year with prices mostly at a low level. Opening at 1s. 4½d., spot gradually weakened to 1s. 3½d. by June and to 1s. 3d. by August, 1s. 2½d. to 1s. 3d. being quoted from October up to the close of the year. SALOL opened at about 3s. 2d., and with the approach of the removal from the key industry list, value on spot weakened to 3s. by March. With free imports offers were made at 2s. 3½d., and the market has shown little fluctuation since, closing steady. SODIUM BENZOATE (B.P.) has been very steady all the year, prices falling to the small extent of one penny, opening at 1s. 8d. and closing at 1s. 7d. Business has been satisfactory, a good deal of the chemical sold being imported. SODIUM DIETHYLBARBITURATE shows somewhat more depreciation than most other products in this section, opening at 9s. 3d. and closing at 7s. 10d. to 8s. The decline has been gradual throughout the year, with the biggest break in July-August; business has been poor. SODIUM SALICYLATE is a typical item as regards the trend of prices over the twelve months. The loss on the year is about 3d. per lb. by slight movements in buyers' favour throughout the first ten months of the year. A good volume of business seems to have been done, but chronic competition has been very evident. B.P. crystals opened at 1s. 11d., moving downwards by easy stages to the closing price of 1s. 8d., while powder, commencing at 1s. 10d., reached 1s. 7d. per lb. by December for large quantities and more for best grades. As in former years, most of the trade has gone to British makers. SULPHONAL continued in poor demand for the first two months of the year, during which prices fell away from 10s. 6d. to 9s. 9d. In March, with the removal of key industry duty, spot fell to 7s. 6d. to 7s. 9d. In May there were sellers at 7s. 3d., and in June at 7s. In July 6s. 9d. was quoted, and the lowest price of the year was then quoted at 6s. 6d. upwards. During the last three months the market was steadier and prices gradually moved up, reaching to nearly 7s. by the end of the year. B.P. TARTARIC ACID, at the commencement of the year, was depressed, and the low figures of 11½d. to 11¾d. per lb. were mentioned for foreign crystals. In February 11¾d. to 1s. was quoted on a steadier market, and by March 1s. 0½d. to 1s. 1d. had been reached, but business so far had been slow. The April quotation was 1s. 2d. to 1s. 2½d. on a bright market, the top prices for the year being reached in June-July at 1s. 3½d. to 1s. 4d., with fair business. Conditions held fairly steady until September, although the demand was slackening when the price was 1s. 3d. to 1s. 3½d. From October to the end of the year dealers were offering quantities at 1s. 2½d. to 1s. 2¾d. per lb. THYMOL was in fair demand during January-February, and prices moved up from 11s. 3d. to 11s. 9d. and then moved back to the lower rate in March. Something about this figure continued on the market up to July, when competition broke the price to 10s. 3d. to 10s. 6d. for quantities. With a poor demand over a lengthy period these figures were being discounted at the end of the year. Material ex ajowan seed was at slightly higher rates throughout the year. VANILLIN shows rather a big decline in value on the year, having moved from 18s. to

15s. 6d. to 16s. as to quantity. Competition has been keen between makers and dealers.

	December 1924	December 1925	December 1926	December 1927
Acetanilide .. lb.	1/11 to 2/1	1/7 to 1/7½	1/7 to 1/7½	1/6 to 1/6½
Anidopyrin .. "	15/-	12/9 to 13/-	11/9 to 12/-	8/4 to 8/6
Ammon. bromide .. "	2/2 to 2/4	2/3 to 2/3½	2/1 to 2/1½	1/11 to 2/-
Aspirin .. "	3/1 to 3/3	2/5 to 2/6	2/4 to 2/5	2/3½ to 2/4½
Barbitone .. "	14/-	9/9 to 10/0	8/8	5/9 to 5/10
Benzonaphthol .. "	5/3 to 5/6	3/6	3/3	3/2 to 3/3
Benzoic acid .. "	2/5 to 2/6	2/- to 2/3	2/3 to 2/5	2/0½ to 2/1½
Calcium lactate .. "	1/5 to 1/7	1/5 to 1/6	1/3 to 1/3½	1/1½ to 1/2
Chloral hydrate (duty paid) .. "	4/-	3/3½ to 3/5	3/4 to 3/5	3/3 to 3/4
Citric acid .. "	—	1/3½ to 1/4	1/2½ to 1/3	1/6½ to 1/7
Creosote B.P. .. "	2/2 to 2/4	1/10 to 1/11	1/9	1/8 to 1/9
Creosote carbonate .. "	7/6	6/6 to 6/9	6/-	5/9 to 6/-
Guaicol carbonate .. "	9/6	7/- to 7/3	6/9	4/8 to 4/10
Hexamine .. "	2/11 to 3/2	2/4 to 2/6	2/4½ to 2/6	2/3 to 2/4½
Hydroquinone .. "	4/- to 4/3	4/2 to 4/4	3/11½ to 4/-	3/10 to 4/-
Methyl salicyl .. "	1/9 to 2/-	1/6½ to 1/7½	1/6½ to 1/7½	1/5½ to 1/6
Methyl sulphonal .. "	22/6 to 23/-	16/9 to 17/3	15/3	9/- to 9/3
Milk sugar .. cwt.	97/6 to 90/-	73/- to 75/-	62/- to 66/-	57/- to 60/-
Paraformaldehyde lb.	2/6	1/11 to 2/-	1/9 to 1/10	1/8 to 1/8½
Paraldehyde .. "	1/3 to 1/5	1/2 to 1/4	1/2 to 1/4	1/1 to 1/1½
Phenacetin .. "	5/6 to 5/10	4/- to 4/3	3/10 to 3/11	2/5 to 2/7
Phenazone .. "	7/- to 7/2	6/3 to 6/5	5/9 to 5/10	3/11 to 4/2
Phenolphthalein .. "	5/6 to 5/9	4/3 to 4/5	6/2 to 6/4	6/6 to 6/10
Piperazine .. oz.	2/2	2/11 to 3/-	3/-	2/6
Potash bromide B.P. lb.	1/6	1/8½ to 1/9	1/8 to 1/8½	1/8 to 1/8½
Potash sulphoguaiaac. .. "	5/6	5/4 to 5/6	5/6	5/6
Quinine sulphate oz.	2/2½	2/2 to 2/3	1/8	1/7½ to 1/8
Salicylic acid, B.P. lb.	1/5½ to 1/7	1/3½ to 1/4½	1/4½ to 1/5½	1/2½ to 1/3½
Salol .. "	3/6 to 3/8	3/3 to 3/4	3/3	2/3½ to 2/3¾
Sodium bromide .. "	1/7 to 1/8	1/10 to 1/10½	1/10 to 1/10½	1/10½ to 1/11
Sodium diethyl. barb. lb.	14/3 to 14/6	10/6 to 11/-	9/3	7/10 to 8/-
Sodium salicyl. .. "	2, 2 to 2/3	1/11 to 2/1	1/10½ to 1/11½	1/7 to 1/8
Sulphonal .. "	14/6	11/9 to 12/3	10/-	6/11 to 7/-
Tannic acid, lewiss. B.P. .. "	2/10 to 2/11	2/8½ to 2/10	2/9½ to 2/10	2/8 to 2/10
Tartaric acid, B.P. .. "	1/11½ to 1/-	1/11½ to 1/11	1/11½ to 1/11	1/2½ to 1/3
Thymol .. "	18/6 to 19/-	13/- to 13/3	11/6	10/3 to 10/6
Vanillin .. "	25/3 to 25/6	21/6 to 22/-	19/-	15/6 to 16/-

Industrial Chemicals

A fairly satisfactory year can be reported, during which a good many changes have taken place. Steadiness in place of uncertainty of former years has been a feature of the period under review. As with other markets, the movements in prices have been much less frequent than in previous years, and the decline in values considerably smaller. Business was moderately good in the early months of the year, with a noticeable slackening off in the summer. During the last three months a good recovery was recorded, with a steady flow of business in most products. The steadiness of the market has no doubt been largely due to the fact that sales prices for a large number of products were stabilised by the introduction of conventions on the part of makers and merchants. This uniform method of selling seems to have operated quite satisfactorily, both for seller and buyer.

In former years practically every product in this market could be obtained from a number of sources, all competitive, with the result that prices were never really steady and a good deal of bad quality was put on the market at attractive figures by firms of little responsibility. Continually, markets were upset in this way, and buyers disillusioned about securing "bargains." Under the Convention there are authorised channels of supply of a responsible character, the distributors giving buyers the benefit of sliding contracts. During the year a number of merchants have been weeded out, and only those firms who have direct sources of supply and uninterrupted connection with consumers can hope to survive on a market that leaves no room for the jobber who simply buys and sells when and where he can and at the best price obtainable. The business of selling industrial chemicals was never more routine and "cut and dried" than it is to-day. Despite the strengthened position of home manufacturers by the formation of the big combine, importers have done considerable business and have well maintained their position.

The demand for industrial chemicals relies almost entirely on the general industrial position. The coming year should certainly be no poorer than that under review, and will probably be rather better, although it would be optimistic to forecast any big improvement. Prices will no doubt continue steady, and, taking into account the

reductions in a number of products already notified to home consumers for contracts, there is unlikely to be further material reductions, values now being well down to cost of production.

ACETIC ACID has remained substantially unchanged throughout the year at £37 for 80 per cent. technical and pure; £66 for pharmaceutical glacial and £57 for glacial in barrels. A satisfactory year of business is reported. ACETONE opened at £62 per ton, and in consequence of severe competition between the two sources of supply, the market fell away to £55 to £57 by May. In June there was a recovery at £58 to £59 owing to agreement between the makers having been reached. In September an advance was recorded with the market closing firm at £59 to £62 per ton for B.G.S. in drums. AMMONIUM CHLORIDE has been very steady, with dealers' price for grey galvanising holding at about £22 per ton, in casks, spot, and slightly less for contracts. ANHYDROUS AMMONIA (99.95 per cent.) was quoted in the early months of the year at 1s. per lb., but most sales of any quantity were at lower rates than this. Competition has been very severe, and especially low prices were taken for big contracts. The year closes at 9d. to 11d. per lb. in loaned cylinders, carriage paid, with a good possibility of still cheaper prices in the coming year. ARSENIC has experienced a poor year of business and prices for Cornish white powdered have at no time been really firm, and for the most part weak. Opening at £17 f.o.r. mines quotations had dropped to £16 10s. by March, and to £16 in May. In June the unusually low price of £15 5s. was recorded, followed by a recovery to £16 in July, £17 in August, and up to £18 10s. by October. In November, with the market quiet, the position weakened to £18 5s., and in December to £18, business still being poor. Foreign has been offered throughout at very competitive prices. BARIUM CHLORIDE has been a weak market, with business slow. Prices of 98 to 100 per cent. prime white crystals have fallen from £9 5s. in January to £8 12s. in May, and to £8 in September, closing for spot at about £7 12s. 6d. Prices from the Continent have been cheap all the year. BLEACHING POWDER opened at £8 per ton to home consumers, but dealers were selling imported at something under this figure. £8 was the nominal quotation for most of the year, but the majority of business was put through nearer £7, and this cheaper price is now quoted by home makers and dealers, for 35 to 37 per cent. chlorine.

Makers' prices for BORAX and borax glass remained unchanged throughout the year, while there was a reduction of £4 per ton in November for boric acid, closing at:—Borax, commercial, granulated, £19 10s.; crystals, £20; powdered, £21; extra fine, £26; borax glass, lump, £60; powdered, £61; boric acid, commercial, granulated, £30; powdered, £32; extra fine, £34; B.P. crystals, £36; powdered, £42; extra fine, £42 per ton; dealers' prices were competitive throughout. CREAM OF TARTAR.—Foreign 99 to 100 per cent. powder was steady at 81s. to 82s. 6d. till March, followed by a sharp advance to 95s. to 97s. 6d., reaching the highest point of the year at 100s. per cwt. in July/August. In September there was some weakness, with the market falling back to 95s., followed by a gradual decline to the closing prices of 92s. 6d. to 93s. 6d., with the market quiet. EPSOM and GLAUBER'S SALTS have met with a steady, if limited, demand, and prices have varied to some extent according to quality and quantity, with the usual premium for spot material. Closing prices were about £4 10s. and £3 12s. 6d. per ton, respectively, for commercial quality, and less for quantities to come forward. FORMALDEHYDE (40 per cent. by volume) has been in better call this year, and prices have, as a whole, been steady. Opening at £40, about this figure governed the market up to July when £39 was quoted, and in the last two months of the year dealers were selling at about £38 per ton, in casks, ex store. LITHOPONE has been unchanged throughout the year at £20 for 30 per cent. Continental red seal, in casks, ex store, and less for contracts. Quite average business has been transacted. OXALIC ACID has experienced a good deal of change during the year. Opening at barely 3½d. per lb., fully 4d. was asked in February. During the latter part of February and early March, supplies ran very short, imports not coming forward as the key,

industry duty was likely to be lifted at any moment. Free imports commenced in the middle of March, and the figure quoted for quantities dropped to 2½d. to 3d. and about 3½d. for small parcels. These prices held steady for the rest of the year, and a good volume of business was put through. **POTASSIUM PRODUCTS.**—There are not many items in this section that are not governed by price conventions, and for that reason the markets show little change on the year. Carbonate is one of the few items that show an advance on the year, having opened at £24 for 90 to 92 per cent., and £26 for 96 to 98 per cent., with an advance of £1 per ton in May, and a similar movement in June. In August, prices receded to £25 and £27, and the year closed steady at these rates. Caustic (88 to 92 per cent. solid) opened at £29 spot and £27 5s. c.i.f. for quantities, and in May the Convention rates advanced to £30 10s. and £28 15s. respectively, the year closing without further alteration. Chlorate weakened from January onwards from 3½d. and 3¾d. per lb., reaching 3d. in May and 2¾d. in September-October, for large quantities. These cheap prices were due to keen competition between German and French producers. Latterly the market has been steadier and a recovery to something about 3d. may be expected; small spot parcels at a premium of ½d. per lb. Permanganate of commercial quality has been fairly steady at keen prices; quoted at 5d. in January and reaching 4¾d. for large quantities in March. In May, prices hardened to 5¾d., moving down to 5½d. in September, and closing at 5d. to 5½d. per lb., in two cwt. drums. Yellow prussiate continued at the controlled price of 7½d. per lb. up to July when the price was cut to 6½d., closing the year steady at that figure for large quantities. **SAL AMMONIAC** has cheapened by about £2 10s. on the year, opening at £31 for dog-tooth, £30 for medium, and £19 for fine white crystals; the two higher grades were £1 cheaper in March, with a similar cut in April, closing at £28 10s., £27 10s., and £18 10s. per ton, in casks, respectively. Competition between dealers and makers has again been keen.

In the **SODIUM SALTS**, with the exception of bichromates, chlorate and negligible quantities of soda ash and soda crystals, and prussiate and acetate, the business has been largely done by home makers. Their prices for soda ash (58 per cent. alkali), soda crystals, and soda caustic have been generally unchanged for the year, but a reduction in the price of the latter for next year on contracts for home consumers is reported. Dealers' prices have been fairly steady and business has been about normal. Sodium acetate opened at £19 10s., gradually weakening on a dull market to £17 15s. by June, which was the lowest figure of the year. In July, the market began to improve at £18, reaching £19 early in November, with supplies running short. December prices were firm at £19 10s. to £20 ex store. Chlorate opened at 3d., moving down to 2¾d. per lb. by June, with good business in quantities being done, closing at 2¾d. to 3d., ex store. Bichromate has been the scene of a fight between home makers and dealers with a consequence that prices are uneconomic, closing at 3d. per lb. net for quantities. Prussiate moved from 4½d. to 4¼d. in January, and held steady at that figure for the remainder of the year. In **LEAD PRODUCTS** values of red and white lead, dry and ground in oil, have fluctuated with the metal market, with Continental generally cheaper than home makes, the latter are however favoured in many quarters on account of their undoubted superior quality. Recently an international syndicate of world character has been formed with uniform prices for all markets. Under this new arrangement home makers should do practically all the home trade in future.

Sierra Leone Ginger

ALTHOUGH exports of ginger from Sierra Leone during 1926 amounted to 55,265 cwt. and showed an increase of 6,005 cwt. over shipments in 1925, it cannot be deduced (says the annual Colonial report) that this trade is flourishing. On the contrary, it has suffered and is suffering a period of extreme depression. Prices throughout the year were low, averaging 34s. 8d. per cwt. in the market, the local price offered being approximately 1½d. a lb. 30,816 cwt., valued at £57,799, was shipped to the United States of America, 13,490 cwt., valued at £27,137, to the United Kingdom and 4,011 cwt., valued at £6,033, to France and French Guinea.



Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

The C.D.A. and Scottish Chemists

SIR,—With reference to the letter on the above subject which appeared in your issue of December 24, taking the statements *seriatim*, I repeat that the C.D.A. does not desire to interfere with Scottish pharmaceutical organisation and is, of course, aware that the Scottish Pharmaceutical Federation exists. Everybody knows that the C.D.A. was operating in Scotland twenty years before the formation of the S.P.F., and that the Federation, unlike the C.D.A., does not undertake its own indemnity insurance. It is a fact that the Federation have introduced outsiders into what was the business of the C.D.A., who were the pioneers of chemists' indemnity insurance. The Scottish Federation cannot give greater indemnity and defence benefits than the C.D.A. at a less cost. Regarding indemnity benefits, the company which insures the Scottish Federation has changed its figures several times in order apparently to place the C.D.A. at a disadvantage; we have therefore dispensed with figures. It must be borne in mind that the C.D.A. can afford to meet any competition actuarially sound. Regarding the position of English and Welsh chemists, arrangements will be made as soon as possible to give them an unlimited indemnity also. We have no intention of giving different C.D.A. membership conditions in Scotland, it is not necessary. The C.D.A. has always been a chemists' organisation controlled by chemists for the benefit of chemists. There was no particular reason for the Federation to go outside pharmacy for its indemnity and defence benefits; the C.D.A. has always been willing to provide all that is needed for the members in Scotland and could have done so in conjunction with the Federation. Regarding the management of the C.D.A., this does not need any comment beyond the statement that whereas the company which insures the Federation spends 44.1 per cent. of its income and only provides indemnity insurance, the C.D.A. spends 48 per cent. and in addition to indemnity insurance provides defence benefits under Food and Drugs Act, etc., as well as free legal advice, free analyses, *plus* management by a representative body of chemists, and all these things mean extra money in expenses. The cost, therefore, compares very favourably with an ordinary insurance company, which would not have many of the expenses a chemists' organisation must have, but the fact remains that the whole of the money remaining, after payment of expenses and claims, etc., is held in trust for the chemists and does not go to provide dividends for the shareholders of a company not connected with pharmacy. The obvious attempt to prejudice the C.D.A. by referring to the R.P.U. and the latter's connection with N.H.I. affairs is scarcely sporting, and is certainly ungracious, particularly as the Scottish Pharmaceutical Federation is not entrusted with N.H.I. negotiations in Scotland, and no Scottish chemist is in a position to appraise the work of the R.P.U. in connection with N.H.I. It may be as well to point out that Scotland has indirectly been benefiting all the time by the constant fight for more money and the increases which have been obtained south of the Border. The Scottish doctors prescribe economically, therefore the Scottish drug fund has been solvent since the beginning, although so far as I am aware, if it proved insufficient the Scottish chemists' bills would have to be discounted also. Scottish chemists have been fortunate in not being placed in such difficult circumstances as their English brethren. It appears from the last sentence of the letter that the C.D.A. and R.P.U. are charged with "not playing the game" so far as the Federation is concerned. The facts are that the C.D.A. existed twenty years before the Federation, that it was operating in Scotland when the Federation was formed, and the Federation, without approaching or informing the C.D.A. of its intentions, induced an outside company to enter into competition with the chemists'

own organisation. An attempt on the part of the C.D.A. led by the late Mr. Currie, who was then a director, to come to an arrangement regarding the C.D.A. in Scotland was turned down by the Federation. So far as the R.P.U. is concerned, it was formed at about the same time as the Federation, and it has never asked for or taken members in Scotland. The position, therefore, is that the C.D.A. has been treated with discourtesy, but the R.P.U. has courteously refrained from poaching in Scotland although frequently asked to accept members from across the Border. In conclusion, I want to draw attention to the fact that claims from members of the C.D.A. are dealt with at once, and they do not have to wait for the approval of the Executive or Board as has been implied in some advertising matter recently issued in Scotland, and further, that absolute secrecy is guaranteed. Cases are reported to the Board by numbers only, and no publicity is given at any time which can be identifiable so far as the chemist is concerned.

Yours faithfully,

G. A. MALLINSON,

Secretary, Retail Pharmacists' Union.

London, W.C.1.

Doctors' Guesses at Prices

SIR,—The little paragraph entitled "What the Doctor Said" (*C. & D.*, December 24, p. 786) illustrates a point which is a frequent source of annoyance to chemists in retail business. It is a fairly common occurrence for a customer to come in and state that his doctor has told him to obtain some article from the chemist, such as a nasal syringe or a throat spray, with the gratuitous information that it will only cost him a few pence, with the result that when the customer has chosen an appliance priced at three or four shillings he is highly indignant on hearing the charge. But worse than this is the dispensing doctor who wishes to give his patient some pill or suppository which he does not keep ready in his surgery, and, judging the price by the machine-made article, writes out a prescription for a dozen pills containing creosote or some other tricky ingredient, and hands it to the patient with the remark that the chemist will make them up for sixpence. I had such a customer not long ago; he brought in a script for some pills, and, recognising the signature as that of a man who supplied all his own medicine, I priced it out first by the *C. & D.* Retail Price List. The charge came to 4s. 6d., which he refused to pay. A few days later he came in purposely to tell me that he had got them dispensed at another chemist's for 1s. 9d.; and until the few who do this sort of thing learn the folly of it and charge an economic figure, we cannot be surprised that other people value our services at little or nothing. All the same, I feel inclined, when next I have a customer who has a cut which requires a stitch or a boil which requires lancing, to send him along to the same practitioner to get it done with the advice that the doctor ought not to charge him more than eighteenpence.—Faithfully yours,

HA'PENNY (28/12).

Own Toilet Soaps

SIR,—I have had no difficulty in creating and maintaining a sale for my own particular line of soap, and a sixpenny tablet at that; and I think that my turnover of this line is at least equal to any one of the advertised brands which I stock. I have the added satisfaction of knowing that each customer for it is obliged to come to my shop to purchase it, so that it is a standing advertisement for my premises, and also I am assured that it cannot be taken up by the grocers at cut prices. I have in mind at the moment at least four makes of well-advertised soap which have been taken up in this way after having been introduced by the chemist, and the prices of these are cut to such an extent that, when bought in small quantities, there is a profit of only a penny on a dozen tablets, and even when bought in gross lots it does not amount to a halfpenny on a tablet. One of these lines was introduced with a definite assurance that it would not be cut like the others, and yet in a month or two it went the same way.—Yours truly,

SAPONE (28/12).

A Pharmacist's Handicap

SIR,—Mr. "Venturer" is very lenient when he says that it is the "spirit of compromise" that stands, and has stood, in the way of all our efforts to improve our position. If "Venturer," "Caledonia," Mr. Ferris and a few other scribes (hundreds) who have written to *THE CHEMIST AND DRUGGIST* for the last thirty years to my knowledge had had the courage of their convictions and united, nothing would have "stultified" them. Those who wield and exercise the "spirit of compromise" are just those whom Mr. Ferris and your other correspondents have put in the way of being able to "compromise" by voting for them at the elections or by refraining from voting against them. By the way, "spirit of compromise" is not the name those in "offeicial posection" call it; they call it (and take pride in it as) "wangling." I have heard the word used oftener than once by those in authority. This predisposition for attaining one's ends by "wangling" may be very gratifying to a certain type of mind, but it is only a very poor type. Its calibre is such that it does not see—has not the mental capacity to see—that its wangling is noticed; and it is judged and treated with the scant consideration such reprehensible conduct deserves. The pity of it is that it is not they who suffer the indignity and restrictions that accrue. Now, Mr. "Venturer" and other scribes, what about it? Anything doing, or just more letters—"and so to bed"?—Yours faithfully,

NEMO ME IMPUNE LACESSIT (1/12).

The Coming Pharmacists' Prospects

SIR,—For some time I have been wondering whether I am wise in studying pharmacy with the intention of qualifying and starting in business on my own account. The present-day pharmacist who has made his business is fairly safe, but by all appearances the future young pharmacist is going to have his work cut out to make things pay. We have known for a long time that the limited grocers stock patent medicines and also packed goods such as glycerin, castor oil, cascara, aspirin tablets, etc., and sell these latter goods at cut prices. With a little tact one can always overcome that opposition. But in these days if one goes into a milliner's shop one sees all the requisites for the ladies, such as perfumes, face powders, face creams, hair brushes, etc., on show. And the same applies to the hairdressers. With regard to patent foods, all grocers sell them, in some cases probably giving dividends with them. By now it is a well-known fact that the Aspro people are making an offer to the grocers to the effect that, if the grocers will stock their goods, they will give them a one year's patent-medicine licence free. Such firms are most obliging. They bring out a new line, a pharmaceutical preparation really, and get the chemists to help them by giving window shows, etc., and then, when with their aid they have got the line selling well, they decide to desert the poor old chemist and make their special offers to the grocers. This is certainly not a very pleasant pill for us; but, to crown all, the N.H.I. Committees in some parts of the country are fighting their hardest to reduce the chemist's dispensing fees for his already sweated labour. The prices paid, we know, were the lowest; for example, for 1 lb. malt and oil 11d. is paid, and with a reduction of 33 per cent. there is a decided loss. But if these reductions are going to be allowed I am afraid pharmacy will not be a very paying concern, unless, of course, one gets the luck of the gods. Are the pharmacists not going to make some attempt at holding their own? Perhaps the Society might lend us their aid. There are hundreds of young fellows spending their money on studying, in most cases working hard every day to qualify. The college fees are stiff, and the examination fees are stiff. Of course, if a man does not study as hard as he should, then he must pay up—that is his look-out. But the conscientious student, in most cases, will say when he has qualified that it has been worth all the expense and hard work. From appearances, the all-store system is rapidly finding a footing. If I am wrong, I shall be pleased; but I shall be greatly obliged if someone who really knows exactly what is being done about the whole business will enlighten me.—Yours respectfully,

A STUDENT (13/12).

Fleetwood Relief Fund

SIR,—As one of the chemists involved in the recent flood in Fleetwood may I, through the columns of your paper, express my thanks to the wholesale houses and fellow members of the Society who subscribed to the fund organised by the Blackpool Branch? I have just received my cheque, and I assure you that it is very welcome. A word of thanks is especially due to Messrs. Holdsworth, Hogley and Durkin, who gave a good deal of valuable time to investigation, etc.

Yours faithfully,

Fleetwood.

H. R. WOODHOUSE.

Diminished Insurance Dispensing Payments

SIR,—Since I wrote you in June many things have happened, bringing a whiff of common sense into Insurance dispensing. The 30 per cent. discounts will bring us all right up against it. If we prefer to leave the six mixtures of bismuth, bromides and sodium salicylate at veterinary strengths we must get on with it. If we stop the waste there is a threepenny fee waiting for us in addition to giving the patients "proper and sufficient medicine." The regional medical officers have already reduced my account by one-third for drugs, leaving the fees roughly as they were (barring discounts, of course). The R.P.U. apparently have not yet got a move on; when they do it is quite clear to any man who has anything to think with that we can get sixpenny fees for mixtures, and some of the penny and twopenny fees raised to twopence and threepence. If we try to raise them to ninepence or a shilling we shall merely encourage small company pharmacies to start, which, as one of my neighbours says, "will entirely nullify your rise of fees." Much of what I suggested in June has already been done. (1) The adhesive plaster trap has apparently gone; it reminded me of the old Spanish Inquisition, where you had to embrace the Iron Maiden—a lady with spikes. (2) Pot. iodid. 60 gr. in 8 oz. for asthma is going! I get recipes regularly for 16 gr. (3) 4-oz. and 8-oz. dressings have given place to 1-oz. and 2-oz. (4) Wholesalers' mixtures are again in use. (5) Nasal douches are curtailed. Our old friends are still with us—tincture of orange, at 20s. a pint; bismuth carbonate, 240 gr. instead of 80 gr.; sodii sal., 160 gr. instead of 80 gr. Another six months should see them altered; by which time most of us will deserve and be ready for—a holiday with some peace of mind. I have just had the figures for September and October. Prescriptions are 300 less than 1926, but the total cost is £10 more. The fall in costs for April to August has apparently come to an end, owing to the colder weather of September and October. November and December are likely also to be up on 1926; and 1928 looks like a continuance of severe winter. So if unemployment and malingering continue unchecked, and every trivial case is to get veterinary doses of bismuth, bromides and sodii sal., flavoured with our old friend tincture of orange, B.P., then we are in for a permanent discount of 30 per cent.—Yours truly,

JAY MACK (23/12).

Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics

Appreciations

I will soon be in the midst of stocktaking, with the consequent pricing of drugs, and in this I find your Price List invaluable, for it gets its full share of the work to do; you certainly keep us up to date.—A. R. C. (13/12).

A Herbalists' Belief

A Ducal Decree of Luxembourg orders that no sale of any medicinal preparation may take place except in a registered pharmacy. . . . In your issue of December 17 (p. 765) your interesting contributor of "Observations and Reflections," when treating upon another matter (and we agree that grocers should not be vendors of drugs), offers his definite opinion that "as a matter of fact, there can be no question that the public would benefit greatly if the sale of all medicaments were confined to chemists." As a body of men and women skilled in the art, not only of the manufacture and preparation

of herbal medicaments, but also efficient prescribing thereof, we must emphatically protest against such claims as Mr. Rowsell (*C. & D.*, October 8, p. 460) and "Xrayser III" make for medical monopoly, believing as we do that none but trained medical herbalists can prescribe and dispense herbal medications, and further, that the public would undoubtedly suffer by monopoly as indicated by your correspondents. We are pleased to have on our roll of membership chemists who have passed the examinations of our Association.—Chas. Burden, Hon. Secretary, National Association of Medical Herbalists of Great Britain, Ltd.

Legal Queries

W. P. (11/11).—In a shop *bona fide* run by a chemist and druggist, sales of "known, admitted and approved" remedies unstamped may be made, but if it is run by a person who is not so entitled there is no exemption from the rule of stamping, and a partnership largely nominal cannot confer what is a personal privilege upon another person who is not so entitled.

Fairplay (12/12).—A. employs a manager to whom he pays a fixed salary and a share of the net profits. The manager also occupies the flat above the shop, rent free. The inside of the flat requires redecorating and the outside of the whole of the premises requires painting; should these expenses be charged against the profits of the business or should they be paid by A. personally? [In our opinion, assuming that A. owns the business and also the premises and uses the latter only for the purpose of carrying on the business, and as a residence for his manager, the expenses referred to should be charged against the profits before arriving at the net profit upon which the manager's additional remuneration is based. If A. does not own the business other considerations might arise.]

J. M. R. (7/12).—The licence to which you refer is the wine retailer's off-licence, not the dealer's, since under a dealer's licence it is not permissible to sell less than two gallons or one dozen reputed quart bottles at any one time to one person. There is no distinctive wine retailer's off-licence for the sale of medicated wine, the licence granted being one which authorises the sale of every kind of wine for consumption off the premises. But a practice has grown up in some licensing areas of granting this licence to chemists subject to an undertaking that only medicated wine shall be sold under it. The condition may be disregarded by the licensee without any breach of the licensing law, though of course he would risk having the renewal of his licence refused if he did so. So far as we know, there are no statistics available of the number of these licences held by chemists.

Retrospect of Fifty Years Ago

Reprinted from
"The Chemist and Druggist," December 15, 1877.

Pharmacalia

Now we stand once more upon the threshold of a new year, and the joys and sorrows of the past must fade into the world of shadows. We can but live our day, and try to do our best. Heartily we wish our readers, not the compliments but the realities of the season—a cheerful mind and a hopeful confidence in the future. Not many events of absorbing interest have taken place in pharmacy, and the chemist, in the midst of a bad war and unsettled trade, has pursued his quiet way. . . . The Trade Association might take for their motto, "*Facta non verba*." They are entitled to the thanks of the whole community for their exertions. We have to note the decided advance made by many of the younger generation of pharmacists in their professional career as *chemists*. Many amongst them are fully able to enter upon the path of original research and to extend the science of their calling. Finally, we have to thank many correspondents for the interest they have taken in these Pharmacalia Notes. It has been our constant aim to widen the circle of pharmaceutical information, and to allude to various topics bearing on our occupation; and though, advisedly, we have wandered often into other fields, we have never forgotten that pharmacy must claim our first and best attention.



[Commenced C. & D., July 5, 1924]

Metol.—See Photographic Developers.

Milk Sugar, or lactose ($C_{12}H_{22}O_{11}$, H_2O), is obtained from the whey of cows' milk by evaporating to a low bulk after neutralisation with lime. The crude lactose is purified by recrystallisation from a solution decolorised with animal charcoal. Milk sugar on hydrolysis with dilute acid is converted into galactose and dextrose (being the anhydride of these two hexoses). Milk sugar of commerce is in the form of a fine powder, obtained by grinding the crystals. Its principal use is for infant feeding (for humanising cows' milk) and as a diluent in pharmaceutical powders. Its comparative lack of sweetness and non-hygroscopic character makes it particularly suitable for preparing triturations of potent chemicals and drugs.

Mills, Grinding.—Innumerable types of grinding machinery are used in chemical technology, ranging from the edge runners of drug and spice grindery to ore crushers of mining practice. Only a brief outline of the principles of grinding mills used in chemical industry can be given. The selection of suitable grinding plant is a matter for the chemical engineer, and normally is specifically designed for treating a definite material in large-scale production. The edge runner mill used for drug grinding crushes and shears plant fibres. It is slow in action but does not damage the product by undue heating. The expert miller can effect separation of undesirable gruffs or fibrous matter if necessary. The disintegrator, consisting of arms whirling at high speed in a cast casing carrying suitable screens, is much more rapid and is quite suitable for coarse powders, such as cascara sagrada, for percolation or for grinding sugar and infants' foods. Ball and tube mills consist of rotating cylindrical shells in which hard pebbles or steel balls reduce the material to fine powder by impact. The process of grinding is essentially discontinuous in the ball mill, but newer (conical) types with screens are adapted to give a continuous output. The fineness of grinding with a ball mill depends upon the material and the time taken for grinding, but it gives excellent results with unpromising material (chocolate powder being an example). Disc mills (with shearing action) and ring roller mills (for coal pulverisation) are newer types of mills in which cheapness and continuity of output is a prime desideratum. The advances in grinding mills during the last decade are stupendous. Small mills (with stone rotor) find application for grinding seeds, and the methods of drug grinding are by no means so stereotyped as formerly. For example, multiple arm mills are offered which work quickly without damaging the drug powder.

Mixing Machines are becoming of prime importance in chemical industry. The main subdivisions are:—(1) Mixing and sifting machinery for powders; (2) mixing machines for liquids, including kneading mills; (3) colloid mills for mixing and dispersing liquids and solids. The Gardner mixer and sifter is typical of the first class. However large the plant, the basic principle is admixture of all ingredients in small portions worked along continuously by a spiral and brushed through a rotating sieve. The Baker-Perkins kneader and mixer is used for mixing rubber compounds and cellulose plastics, and stiff composites in general and batch quantities are the rule. Emulsifying machines were formerly of the egg-whisk type, but the newer kinds are capable of high speeds and approach the colloid mill, which shears solids in liquid films. The colloid mill may be the beater type (Plauson) or the Premier mill with shearing gap. In both cases the subdivision of solid occurs during dispersion in (sheared) liquid.

Morphine and Morphine Salts, Commerce of.—The following figures show the imports, exports and re-exports into and from the United Kingdom during the past five years:—

IMPORTS					
—	1922	1923	1924	1925	1926
	oz.	oz.	oz.	oz.	oz.
Total from foreign countries	189	50	104	14	4
Value £	1,106	28	80	22	4
British India	—	—	71,680	16,000	99,840
Other British countries ..	—	4,753	35,661	—	—
Total from British countries	—	4,753	107,341	16,000	24,569
Value £	—	1,863	30,847	5,000	—
Total	189	4,803	107,445	16,014	99,844
Value £	1,106	1,891	30,927	5,022	24,573

EXPORTS					
—	1922	1923	1924	1925	1926
	oz.	oz.	oz.	oz.	oz.
Total to foreign countries	121,863	65,372	46,305	40,007	33,269
Value £	55,164	31,245	39,986	31,386	21,157
Total to British countries	15,637	21,561	12,641	16,157	14,113
Value £	8,112	10,758	10,946	14,211	11,550
Total	137,500	86,933	58,946	56,164	47,382
Value £	63,276	42,003	50,932	45,597	32,707

RE-EXPORTS					
—	1922	1923	1924	1925	1926
	oz.	oz.	oz.	oz.	oz.
Total to foreign countries	—	442	1,041	1,098	—
Value £	—	254	804	855	—
Total to British countries	40	24	92	63	10
Value £	15	13	71	85	11
Total	40	466	1,133	1,161	10
Value £	15	267	875	940	11

Moxa (Brennstifte, German). — This curious drug consists of small masses of combustible matter intended to be burnt in contact with the skin to produce an eschar. It is an article of Chinese materia medica, and is sold in small tufts eight to twelve lines in height composed of white hairs. These are found growing in small tufts like hairy galls on the stems of various species of *Artemisia*, not especially on *Artemisia Moxa*, DC., but also on *A. vulgaris*, L., *A. Chinensis*, Linn., etc. Moxa was formerly official in the Dublin Pharmacopoeia, and was referred to *A. Chinensis*, L., and *A. indica*, Willd. (now *A. vulgaris*, L.). The cause of the curious growths does not appear to have been determined; possibly they are of insect origin (mites (?)). Moxa was known to the ancient Egyptians and Greeks. In China, Japan and other Eastern countries it appears to have been known from time immemorial (2,600 B.C. in China). It is used for cauterisation, the moxa being placed on the skin and set on fire at the apex. Cauterisation by fire was commonly practised by savage and half-civilised nations from the earliest periods of history. Its use was introduced into Europe by the early Portuguese navigators. The name "moxa" appears to be of Japanese origin. The word "yomogi" is the Japanese for *Artemisia*, and "mogusa" is the name for prepared artemisia leaves, just as "Ai Shu" is Chinese for the same, "ai" being the Chinese name equivalent to it. The ai plant generally used in China for moxa appears to be *Artemisia vulgaris*, Linn., but there is no doubt that other species on which the woolly tufts occur are used. "Mogusa" is apparently pronounced phonetically as "moka." At one time it became popular in France, and came into use to a limited extent in this country. An artificial moxa was introduced, made by dipping cotton into a solution of potassium nitrate and drying it, but the solution needs to be equally absorbed or it will not be uniformly consumed and the heat unequally distributed when the moxa is lighted. Moxa is applied as near the seat of the disease as

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possible, and in neuralgic and paralytic cases, at the origin or over the nerves proceeding to the part affected.

M.P.S.—The initial letters used to represent the title "member of the Pharmaceutical Society of Great Britain." Everyone registered as a pharmaceutical chemist or a chemist and druggist under the Pharmacy Acts is entitled to apply for admission to membership of the Society. (See Pharmaceutical Society of Great Britain.) There is no entrance fee. So long as membership continues, members are entitled to possess and use certificates of membership—e.g., by exhibiting them in their shops; but persons ceasing to be members must at once return their certificates to the registrar of the Society. Persons pirating or improperly using, or inciting to the pirating or improper use of, any diploma or certificate of the Society, or falsely representing themselves as members by means of advertisements, handbills, labels, circulars or otherwise, are liable to legal proceedings; and cases are reported, from time to time, of pharmacists who have allowed their membership subscriptions to lapse being sued for the recovery of the amounts due.

Mucilages.—Many plants contain in various parts viscid secretions to which the name "mucilage" is given. Pharmaceutically the term denotes a viscous, glutinous, colloidal solution or mixture of a gummy, vegetable substance with water. Mucilages are used in the arts as adhesives and as thickening or suspending agents. In medicine they are used externally as emollients and internally as demulcents. In pharmacy they are used as adhesives, as emulsifying agents, as suspending agents in mixtures and as excipients in making pills, lozenges and pastilles. *Mucilage of Acacia B.P.* is made by dissolving two parts by weight of washed gum acacia in three parts by volume of water. It forms a thick, yellow liquid, having marked adhesive and emulsifying properties. On keeping, it rapidly becomes acid and its useful properties are diminished. This change, which takes place most rapidly in hot weather, can be delayed by the use of preservatives, such as chloroform, or by heating the mucilage to destroy micro-organisms and storing under sterile conditions. Mucilage of acacia is the best emulsifying agent for general use. In the proportion of 1 in 8, it is used as a suspending agent for powders in mixtures. It forms a useful demulcent basis for cough linctuses. It should not be dispensed with strong acids, alcohol, borax or salts of heavy metals, as these substances precipitate the gum in the form of an insoluble coagulum. *Mucilage of Indian gum B.P.* is made from ghatti gum, and is of half the strength of mucilage of acacia, for which it is used as a substitute in India and the Eastern parts of the Empire. *Mucilage of Tragacanth B.P.* is made by suspending $1\frac{1}{2}$ parts by weight of the powdered gum in a little alcohol ($2\frac{1}{2}$ parts) and mixing rapidly with 100 parts by volume of distilled water. The gum partly dissolves and the remainder swells up and forms a viscous white opalescent liquid. It is inferior to mucilage of acacia as an emulsifying agent, but is usually preferred as a suspending agent on account of its greater viscosity. Mucilage of tragacanth forms the basis of many emollient preparations for the skin. *Mucilage of Starch* (1 in 10), made by means of boiling water, is used as a poultice for removing crusts in dermatological practice, and a mucilage of one-fourth this strength forms a suitable basis for enemata of castor oil, asafetida, tincture of opium and other drugs. Mucilages made from flour are in extensive use as adhesives. *Mucilage of Irish Moss* (1 in 40) is made by boiling the carrageen with water. It is a good emulsifying agent for cod-liver oil and other fixed oils, especially if a power emulsifier is used. It has been given as a demulcent and has nutritive properties due to the carbohydrate which it contains. *Mucilage of Quince Seeds* (1 in 25) is made by extracting the mucilaginous material from the seed-coats with cold water. It may be taken internally as a demulcent and forms a suitable basis for emollient toilet preparations. Demulcent preparations are also made

from linseed, ispaghula seeds and slippery elm bark by extracting the mucilaginous constituents with boiling water. The most useful adhesive mucilages are made from combinations of gums or from dextrin.

Mulberry.—The mulberry tree, *Morus nigra*, Linn. (N.O. *Urticaceæ*), is a native of Asia Minor, extending to Persia, but has long been cultivated in European countries, though chiefly for feeding silkworms on the leaves; but in 1434 *Morus alba*, Linn., was introduced from the Levant, and is still the tree used for silkworm culture. But that mulberry fruit was far more esteemed in olden times than at present is evident from the fact that it is one of the useful plants ordered by Charlemagne (A.D. 812) to be cultivated on the Imperial farms, and that a syrup of mulberries is mentioned in the Calendar of Cordova, which dates from A.D. 961. Still, the mulberry holds its own in many gardens in this country, especially in the southern counties. The fruit is very attractive to birds, which pick off the ripe purple fruit almost as soon as they ripen, so that when the crop is wanted for making syrup of mulberries the trees have to be watched. The crop is usually a good one, but occasionally the weather is too wet or cold for the berries to ripen well. The berries are juicy when quite ripe and have to be packed like raspberries for railway carriage. The fruit is generally ripe. From a student's point of view the fruit is an interesting one. The tree bears unisexual catkins. The female catkin, a so-called fruit, consists of numerous flowers with green four-lobed perianths and two linear stigmas. The lobes overlap each other and become fleshy, and their lateral aggregation form the so-called berry, which is really a composite fruit, to which the name of sorosis is sometimes applied. The mulberry is one of the most saccharine of fruits, containing nearly twice as much as raspberries, strawberries and whortleberries, and exceeded only by the cherry and grape. Its acidity is due to malic, probably tartaric acid. The white mulberry fruit is not acid. An intoxicating liquor is prepared in Greece from fermented mulberries.

Musk, which is probably one of the oldest and most esteemed raw materials used in the manufacture of perfumes, is a dried secretion of the preputial follicle of *Moschus moschiferus*, a small deer found chiefly on the precipices of Northern India and in Central Asia. The secreting gland is peculiar to the male animal. In the fresh state the musk secretion is a syrupy liquid of the consistency of honey and reddish-brown in colour. After the animal is killed the musk solidifies gradually and becomes black and granular, but greasy to touch. The musk deer is gradually becoming extinct owing to the ravages of hunters, and edicts have been issued in Thibet to stop the slaughter. It is, therefore, being considered whether a means might be devised to extract small quantities of musk without killing the animal. In commerce musk is usually sold in pods. Some "grain-musk" is sold, but as this is so readily and frequently adulterated, most perfumers prefer to purchase in pods. Adulteration of the pods is also practised by the insertion of dried blood, albumen or earthy matter after carefully opening and reclosing the pods in such a way that only an expert might detect it. Musk is exported from China in small, silk-covered, lead-lined boxes, and from 1,000 to 3,000 catties (1 catty = 22 oz.) is exported thence annually. The main varieties of musk are:—Nankin, Tonkin, Yunnan, Cabardine, Nepal, and Assam. Nankin is the finest but is hardly an article of commerce. It is, or was, never adulterated. Tonkin musk is much valued, being exported from Canton and collected in Thibet. The pod is round, slightly flattened, but never pear-shaped. "Blue skin" musk is ordinary Tonkin musk prepared in a special manner and much sought after. Its advantages are said to be:—The character of the musk can be more readily judged without opening the pod; less chance of adulteration owing to delicacy of the pod; easier to granulate; less skin to putrefy; appearance. Yunnan musk appears to be nothing more than a local variety of Tonkin musk. Cabardine musk has a much less fine odour than Tonkin musk, but being cheaper is less



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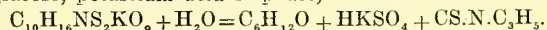
adulterated. The pods are more oval and flatter than those of the Tonkin musk. They are also more hairy and moist to the touch. Nepal musk is only seen from time to time on the London markets, most of it being used locally. The pods are very small, about one-third the size of Tonkin pods. They are in the form of hard, round balls, covered with inch-long hairs. Assam musk is also rarely on the market, and then only in small quantities. The pods resemble Nepal pods, but have a much darker skin. A pure dry musk should contain from 50 to 75 per cent. of matter soluble in water, but only about 10 to 15 per cent. of matter soluble in alcohol. The moisture ought not to exceed 12 to 15 per cent., and the ash not more than 8 per cent. Muskone, which has an intensely powerful odour, has been isolated from musk, being present to the extent of from 0.5 to 2 per cent. Musk is used in perfumery as a fixative, and to impart to perfumes a particularly subtle tone which no other substance can give. There are numerous substances possessing a more or less musky odour, but few of them have any value in commerce. The so-called "American" musk is the product of a gland attached to a caudal appendix in the musk rat. The seeds of *Hibiscus Abelmoschus*, known as ambrette seeds, yield an essential oil having a musk-like odour. These seeds are known as "musk seed." The dried root of *Ferula siumbul*, known as "musk root," yields from 0.25 to 1 per cent. of a fragrant essential oil having a distinct musk odour. In French Guiana the wood of *Guarea grandiflora* is known as musk wood, all parts of the tree, especially the bark, having a pronounced musk odour. *Mimulus moschatus*, the cultivated musk plant, which had formerly a strong musk odour, was not used to any extent in perfumery. Curiously enough, the plant now grown appears to have lost its odour.

Musk, Artificial, is found in three main varieties: Musk xylene (or xylol); ketone musk, and musk ambrette. There are also aldehyde musk, cyane musk and azido musk, but these are of lesser importance. Musk xylene was patented in this country in 1889 (No. 4963) by Baur. Xylene musk, the original "musk Baur" of commerce, is the trinitro-derivative of tertiary-butyl xylene. The ketone musk of commerce is weaker, but much finer in odour, than musk xylene, and is the dinitro derivative of butyl-xylyl-methyl ketone. It melts at 136° when quite pure. Musk ambrette is usually regarded as the finest of all the artificial musks, and consists of the tri-nitro-pseudo-butyl-*meta*-cresyl methyl ether. The artificial musk of commerce is sometimes a mixture of homologous bodies, so that the melting point may not correspond with that of any one of the bodies above described. The main adulterant is acetanilide. Another form of adulteration consists of the addition of a lower grade of artificial musk. The best solvents for the artificial musks are the esters, benzyl benzoate and ethyl phthalate.

Mustard.—The mustard of commerce is said to consist of the powdered, decorticated, seeds of black mustard, *Brassica sinapioides*, Roth., and white mustard, *Brassica alba*, Boiss. (N.O. *Cruciferae*). The condiment as sold in powder does not have a pungent smell, and should not contain starch, as this is not present in the ripe seeds. The black mustard seeds contain 27 per cent. of fixed oil, and the white mustard seed 30 per cent. This oil, when expressed, is sold as a remedy for rheumatism. In making mustard for table use, cold water should always be used, as hot water destroys its pungency. This is due to the curious fact that the pungent oil of mustard does not pre-exist in the seed, but there is present a glucoside and an enzyme in the seed, in separate cells, and it is only when these are brought together in contact with water that the pungent oil is developed. The glucoside present in the black mustard seed is called sinigrin, and the enzyme which decomposes it is called myrosin. The glucoside in the white mustard seed is called sinalin, but it contains also the same enzyme that is present in black mustard seeds, viz., myrosin, but whilst black mustard seed yields from its glucoside,

sinigrin, a very pungent, volatile oil, called isothiocyanate of allyl, the white mustard glucoside yields an oil, with a pungent taste and powerful rubefacient action, but not being volatile it has no effect upon the eye. Black mustard seed varies considerably in commerce. The genuine is always deeply reticulated, and can easily be picked out under a good lens from the rape seed, the surface of which appears almost smooth, and other cruciferous seeds with which they are often confused by wholesale seed dealers, especially in India. The Indian black mustard seed is often sold in Europe instead of the English. There are several commercial varieties of the Indian black mustard plant, one of which is known as Brown Bombay mustard seed. This seed is rather larger and somewhat oblong rather than round. This variety is said to be preferred by mustard makers in France. It is also the kind preferred by the natives of India as a condiment. The black mustard plant may be distinguished by the smooth, erect, narrow pods growing close to the stem, and the white mustard by its larger spreading pods, with a sword-shaped beak, and it is a hairy plant, whilst black mustard has smooth leaves. The yellow seeds of white mustard are sometimes used in wholesale drug houses to dry the insides of bottles from the last trace of moisture, which is quickly absorbed by the mucilaginous layer of the skin of the seed. It is thus especially useful for drying bottles that are to contain oils, etc. The average quantity of mustard seed exported from India does not usually exceed 5,000 tons a year, and even that is believed to contain a large admixture of rapeseed. In the last pre-war year it was 5,104 tons, and in 1916-17 6,174 tons. The bulk of the exports goes from Bombay packed in bags of 168 to 182 lbs., and France is the chief customer, more than 50 per cent. being appropriated by her every year. Occasional shipments are made to Germany.

Mustard Oil.—By the distillation of the seeds of several species of *Brassica* with water, the essential oil of mustard is obtained. *Brassica nigra* is the chief species used, but in commerce mustard seeds contain a substantial proportion of the seeds of *Brassica juncea* and *Brassica rapa*. The seeds contain the glucoside potassium myronate, which, under the influence of a ferment, myrosin, in the presence of water, decomposes into glucoside, potassium acid sulphate, and mustard oil:—



Mustard oil consists almost wholly of allyl isothiocyanate, which is easily prepared artificially, and, in consequence, there is an artificial oil on the market, made by distilling allyl iodide or bromide with alcoholic solution of potassium thiocyanate. The essential oil of mustard is an evil-smelling liquid, very pungent, and possessing the following characters:—Specific gravity, 1.015 to 1.025 (rarely 1.030); refractive index, 1.5267 to 1.5281; optical rotation, $\pm 0^\circ$; boiling point, 148° to 155°. A sample, alleged to be from seeds of *Brassica juncea*, and examined by Schimmel, was found to have the following characters:—Specific gravity, 0.995; optical rotation, $+ 0^\circ 12'$; refractive index, 1.51849. Numerous methods for the determination of mustard oil (i.e., of the thiocyanate compound) have been proposed. Dieterich's is an accurate method and a typical one. 3 grams of the oil and 3 gm. of alcohol are shaken in a flask with 6 gm. of a 10 per cent. ammonia solution. After standing a few hours, it should clarify and deposit crystals of allyl thio-urea (thiosinamine). To determine the quantity, decant the mother liquor and evaporate slowly on a water bath in a tared capsule, adding more slowly as the ammonia odour vanishes. Then add the crystals from the flask to those in the capsule, rinsing the flask with a little alcohol, and heat the capsule on a water bath to a constant weight. 3 grams of oil should give from 3.25 to 3.5 gm. of thiosinamine, which should melt between 70° and 74°. 116 parts of thiosinamine correspond to 99 parts of allyl isothiocyanate. Acrylyl isothiocyanate, or "white mustard oil," is a yellowish oily liquid with a pungent smell and unpleasantly hot to the taste. It is prepared synthetically by treating *p*-hydroxy-



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benzylamine with carbon disulphide and the resulting compound with mercuric chloride.

Myrtle Oil.—The myrtle, *Myrtus communis*, is widely distributed in the mountainous parts of the Mediterranean, chiefly in Spain, Italy and the South of France. The leaves are used for distillation of the essential oil, which is a yellow or greenish-yellow oil, having a clean, fresh odour. Schimmel gives the following characters, which it will be seen vary with the origin of the material:—

Country	Specific gravity	Optical rotation	Refractive index	Ester value	Ester value after acetylation
Spain ..	0.913–0.925	+22° to +25°20'	1.467–1.470	68–86	103–117
France ..	0.890–0.904	+15° to +25°	1.464–1.468	19–43	33–56
Corsica ..	0.883–0.887	+22° to +27°	1.464–1.470	13–25	30–38
Syria ..	0.893–0.922	+11° to +26°	1.463–1.468	18–31	54–7
Asia Minor	0.913	+10°42'	1.467	39.4	94.9
Cyprus ..	0.917	+8°11'	1.463	20.9	63.9
Algeria ..	0.881–0.887	+25°52' to +27°30'	1.464	17–20.6	39.2
Dalmatia	0.926	+13°20'	1.466	134.8	186.7

The oil contains pinene and camphene, and probably dipentene. Sicilian myrtle oil has been stated by Pellini to possess the following properties:—Specific gravity, 0.905–0.925; optical rotation, +19.64° to +30°; refractive index 25°, 1.4666–1.4687; esters as myrtenyl acetate, 29–46 per cent.; free alcohols as myrtenol, 5.9–14 per cent.; total alcohols, 34.5–42.2 per cent.

Myrrh.—The myrrh of commerce is chiefly produced in Somaliland, and is derived from a small tree, about the size of a hawthorn, growing in Southern and Central Somaliland. It was named *Balsamodendron Myrrha*, by Nees von Esenbeck (N.O. *Burseraceae*), a name which has been altered to *Commiphora Myrrha*, Holmes, in consequence of the genus *Balsamodendron* being sunk under *Commiphora*. It is chiefly collected in the Dulhanta and Ogaden countries in Western and Central Somaliland. The tree yielding myrrh is called "Didthin" by the native Somalis, and the gum resin myrrh by the name "malmal" or "mulmul," and by the Indian and Arab traders as "murr" or "karam." By the Arabs it is called "hera hol," a name which is possibly a form of the Sanscrit name of myrrh, "vole." The myrrh collected in the parched coastal region is distinguished in Somaliland as Guban myrrh, while that from the high plateaux of the interior is known as Ogo myrrh. It is the latter that is recognised in English commerce as "good Aden myrrh." It usually has a powdery surface, due to attrition through long-distance carriage. The Guban myrrh has a more oily appearance, exuding minute drops of oil. In both the distinct odour and bitter taste are present, the taste being, however, less bitter in the Guban myrrh. The fracture of the pieces is resinous waxy, with white streaks present in most of them. The myrrh of English commerce usually comes by way of Bombay and Aden, or sometimes direct from Aden. Myrrh is generally brought to the great fair of Berhera, in November to February, while Banian traders from Bombay attend, and ship it to Bombay. There is generally more or less of other gum resins, derived from other species of *Commiphora*, mixed with myrrh. The myrrh is sorted on arrival at Bombay and the best sent to Europe, but this is only a matter of grades. An account of some of the trees yielding these gums is given by D. R. Drake-Brockman, F.R.G.S., in his book entitled "British Somaliland," 1912 (page 252), and appendix VI. Occasionally two kinds of Arabian myrrh (Fadhli and Yemen), which differ slightly from true myrrh, are shipped from Makullah and Yemen or Mocha to Bombay, and are distinguished there by the name of meetiya (Dymock). The Fadhli Arabian myrrh occurs in smaller pieces than ordinary myrrh, made of agglutinated tears,

which present a dusty surface, but it is free from white streaks. The taste is less bitter and is less aromatic than ordinary myrrh. It is said to be brought from the mountains east of Aden. The Yemen Arabian myrrh occurs in large pieces of a dark, reddish-brown colour and dusty surface. It does not show whitish streaks nor exude drops of oil like the Guban myrrh of Somaliland. It is exported from Makulla in South Arabia to Bombay, and possibly thence to Aden, but it is only rarely seen in English commerce. It is mostly sold in India as true myrrh, which is known as karam. There is also occasionally in the Bombay market a myrrh that comes from Persia and is characterised as Persian myrrh, but it does not appear to have ever come into European commerce. It occurs in very large masses of a rich reddish-brown colour and considerable translucency, very oily, in character, therefore approaching the coastal Guban myrrh of Somaliland; in taste and odour it resembles African myrrh very closely. In 1882 as much as 1,000 cwt. of this Persian myrrh was imported into Bombay. Another kind of myrrh is imported into Bombay from Siam, and is used in Bombay and Calcutta instead of true myrrh. It can hardly be distinguished from the meetiya of Southern Arabia. The dealers at Bombay say that no true myrrh is ever received from Arabia. It is remarkable that neither the Fadhli nor Yemen myrrh show the whitish streaks found in medicinal myrrh, yet the odour and taste resemble those of myrrh, so that these kinds are apparently derived from allied species, or perhaps only climatal varieties of the *Commiphora myrrha*, Holmes. The actual species of *Commiphora* that yield Arabian myrrh still need botanical investigation. Myrrh contains about 27 per cent. of resin, soluble in alcohol and in alkalies. It has a peculiarity which is not possessed by the other varieties of myrrh, that, if dissolved in carbon disulphide and a little bromine added to the solution, an intensely violet liquid is obtained. It also yields a volatile oil to the extent of $\frac{2}{3}$ per cent., which is powerfully antiseptic and contains formic acid. The gum which is left undissolved when myrrh is dissolved in alcohol possesses adhesive properties, like those of gum acacia, and can be used for labelling purposes. The bitter principle of myrrh appears to be a glucoside, but it has not yet been accurately described. Good myrrh should not yield more than 5 per cent. of ash, but the powdered myrrh of commerce often yields much more. The myrrh of Scripture is a different drug (produced by a different species of *Commiphora*, viz., *C. Erythraea* var. *glabrescens*, Engl.). This is evident from the fact that medicinal myrrh never has been used as a perfume, whilst the myrrh mentioned in Scripture was evidently used for that purpose. It was evidently known as a distinct kind to the Romans, since Pliny describes a kind of myrrh named *odoraria*, which was used in temples like incense. In Somaliland the perfumed myrrh is known as habbak hadi, i.e., the gum of the hadi tree, the tree found only in the western districts of Somaliland, especially in the Ogaden, Rer Amaden and Anlihan countries. The gum resin is packed in sacks like myrrh, but the two are always kept distinct and known by distinct names, i.e., malmal and habbak hadi. By the Arabs they are also named differently, viz., hera bol for medicinal myrrh, and baisabol or hissabol for perfumed myrrh. In this country until the beginning of the century it came to London under the Arabic name of bissabol, and was regarded as a kind of bdellium. There arose at the end of the last century a demand for the old Persian drug opoponax, and bissabol was purchased under the idea that it was opoponax. It was discovered in Germany that it possessed a peculiar fragrance and the distilled oil was sold as oil of opoponax. It was under this name that the perfume named opoponax came into vogue. (The true Persian opoponax has quite a disagreeable odour, like that of bruised ivy leaves, except when young, when the gum resin gives off a celery odour.) That this perfumed myrrh or bissabol was evidently used in ancient times is obvious from its use in the holy anointing oil (Exodus 30, v. 34).



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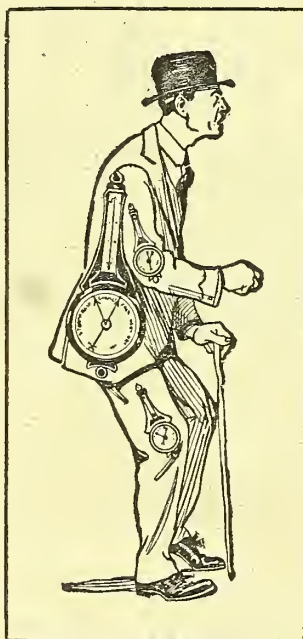
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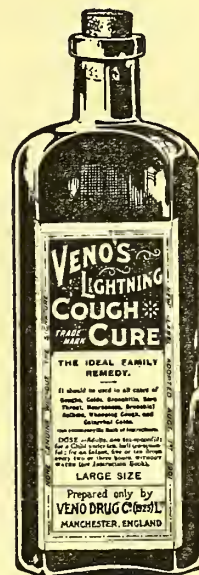
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Mexico City, Mexico; Montreal, Canada; Paris, France; Milan, Italy;
Barcelona, Spain; Berlin, Germany.

Telegrams,
YEASTPIRIN-SMITH, LONDON.

REG. TRADE MARK

YEASTPIRIN LTD., 26 & 27 Hatton Garden, LONDON, E.C.

POISONS and PHARMACY ACT.

Privy Council Order, Jan. 1, 1921.

DANGEROUS DRUGS ACT, 1920.

Regulations of May 20, 1921. (Operative Sept. 1, 1921.)

**Dr. J. Collis Browne's
CHLORODYNE**

is not affected by above Order or Regulations.

It does not require purchaser's signature.**Proprietors: J. T. DAVENPORT, Ltd., 83/87 Union Street, S.E.1.****SNOWFIRE SALES
SOARING!**

Up they go directly wintry weather comes! Everybody asking for Snowfire! The fame of the little tablet spreads and spreads. Sales increase by leaps and bounds winter after winter. Snowfire means quick sales. Brisk turnover. That's why chemists like to handle it.

Snowfire
CARTONS AND NICKEL-PLATED CASES **TABLET**

And are you well stocked with these other Snowfire lines? Their value as profitable all-the-year-round sellers is proved beyond doubt.

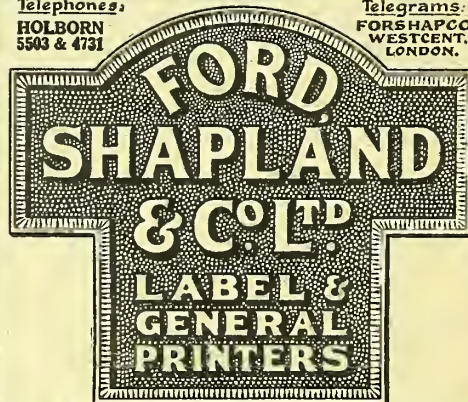
Snowfire Cream.
Snowfire Jelly.
Snowfire Shampoo.

Snowfire Toilet Soap.
Snowfire Shaving Sticks.
Snowfire Face Powder.

F. W. HAMPSHIRE & CO. (1927) Ltd., Riverside Works, Derby

Telephones:
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5503 & 4731

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FORSHPCO.
WESTCENT.
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FINE ART SHOWCARDS, CARTONS,
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CORN SILK, ETC.

*"Sol-Vo" Sanitary Paper
in Rolls & Packets.*

AGENTS FOR THE REGISTRATION
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THE
STANDARD
OF QUALITY

SPUN COLD CREAM

UNRIVALLED
FOR HALF A
CENTURY

ROBERT BLACKIE

SHEN WORKS,
TOWER BRIDGE ROAD,
LONDON, S.E.1,

'PHONE: HOP 2422 (2 lines).

TELEGRAMS:
USHENSPUNA, LONDON.

IN BULK OR PACKED.

TINS. BOTTLES. POTS.

SPECIAL QUOTATIONS FOR
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CHEMISTS'
TOILET CREAMS

OF EVERY DESCRIPTION
SUPPLIED.

ORDERS
DELIVERED
WITH
PROMPTITUDE.

ILLUSTRATED
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POST FREE.

TESTOGAN

FOR MEN.

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FOR WOMEN.

*A Proven Efficient Remedy
(Formula of Dr. Iwan Bloch)*

INDICATED IN

**Impotence and Insufficiency
of the Hormones.**

CAVODENT TOOTH PASTE

Made with Milk of Magnesia.

BISMOLAN SUPPOSITORIES AND OINTMENT.

For the Treatment of Hemorrhoids.

ATOCIN TABLETS for Rheumatism,
Gout, etc.

For literature and other information apply to

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137 REGENT STREET, LONDON, W.1.



Beecham's Pills

1s. 3d. size - 11s. 9d. per dozen
3s. 0d. " - 28s. 0d. "
5s. 0d. " - 54s. 0d. "

Beecham's Powders

1s. 3d. size (8 Powders) 11s. 9d. per dozen
5s. 0d. " (40 ") 54s. 0d. "

Less 2½% Cash Discount.

**A further 5% allowed for Window
or other Advertising display.**

**Orders—Minimum Quantity FIVE POUND
(Assorted sizes, Pills and Powders).**

PACKAGES FREE. CARRIAGE PAID.

TERMS: CASH WITH ORDER.

All communications to be addressed
and cheques made payable to—

**BEECHAM ESTATES & PILLS LIMITED,
ST. HELENS, Lancashire.**

CLARKE'S BLOOD MIXTURE & OTHER PREPARATIONS

Wholesale Prices.

		SIZES.	PRICE PER DOZEN.
Clarke's Blood Mixture	.. ..	3/- & 12/-	£1:7:0 & £5:8:0
„ Miraculous Salve	.. ..	1/3, 3/- & 5/-	11/-, £1:7:0 & £2:4:6
„ Special Aperient Pills	.. ..	1/3, 3/- & 5/-	11/-, £1:7:0 & £2:4:6
„ Patent Skin Lotion	.. ..	1/3	11/-
„ Medicated Soap	.. ..	1/-	9/-

Orders: Minimum quantity £16:4:0 value.
FREE CASES. Carriage paid upon orders of £100.

All Wholesale Houses keep a large stock of our Preparations and can supply smaller orders promptly.

Minimum Retail Selling Prices: 1/-, 1/3, 3/-, 5/- & 12/- Face Value, giving a PROFIT of 33½% on cost to Distributors.

An attractive Showcard and Dummies supplied on application.

Trade Mark: "BLOOD MIXTURE." Regd. No. 3275.

Sole Proprietors:

THE LINCOLN & MIDLAND COUNTIES DRUG CO., LTD.
Park Street, LINCOLN.

A Quick Selling Saline Laxative.

Sal Hepatica Window Display Terms.

PARCEL No. 1

Contains: 6 doz. 1/3 size at 11/3 per doz. and 3 doz. 2/6 size at 22/6 per doz.; total value, £6 15s. 0d. Discount, 10 per cent. Further cash discount, 1½ per cent.

PARCEL No. 2

Contains: 3 doz. 1/3 size at 11/3 per doz. and 1 doz. 2/6 size at 22/6 per doz.; total value, £2 16s. 3d. Discount, 7½ per cent. Further cash discount, 1½ per cent.

PARCEL No. 3

Contains 1 doz. 1/3 size, value 11/3. Discount 5 per cent. Further cash discount 1½ per cent.

Terms 30 days net. Carriage Paid. Orders for any of these parcels will be accepted through P.A.T.A. wholesalers. A supply of attractive Sal Hepatica show material will be sent—free—on request.

Sal Hepatica

BRISTOL - MYERS CO.

112 Cheapside - London, E.C.2

Sydal KEEPS ON SELLING



—the skin doctor and beautifier—is being advertised extensively all over the country. Just a spot rubbed into the skin removes roughness, soothes soreness, cures chilblains and gives a fragrant, non-greasy daintiness.

Sydal retails at 1/6 per jar.
Sample tin sixpence post paid.

Sydal Proprietary (Room 12), Planet Works, Bramley, Leeds

Dr. BENGUE'S BALSAM

RHEUMATISM, NEURALGIA, GOUT.

Dr. BENGUE'S ETHYL CHLORIDE.

Dr. BENGUE'S DRAGÉES.—EUPURGO.

PULMO (BAILLY).—FORXOL.—OPOBYL.

ANESTILE.—NARCOTILE.—HEMOSTYL.

LIPIODOL.—MUTHANOL.—ARHEMAPECTYL.

ENTERO ANTIGENS.—STAPHYLOTHANOL.

NEOPANCARPINE, RICARD'S CACHETS.

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DOUBLE YOUR **MONEY PROFIT**

Are you interested in a line that pays you at least "DOUBLE YOUR MONEY" profits?

A profit of £10 on an investment of £10, this is accurately what the NYAL line pays many chemists. £1 per day NYAL Sales means £3 weekly profit.

The NYAL plan was born 26 years ago, now there are 25,000 NYAL Chemists in English-speaking parts of the world. These men have found the value of NYAL in their business. Why not you?

NYAL lines are an attractive series of Open Formula Household Remedies and Toilet Goods which are sold to Chemists, and Chemists only. They are not sold to the Draper, Grocer or Hairdresser.

There is no price cutting with NYAL.

Each package carries our guarantee that if your customer is not satisfied he gets his money back.

We offer generous FREE BONUS goods on seasonable lines.

Briefly NYAL offers—

**TRADE PROTECTION
PRICE PROTECTION
BETTER THAN A LIVING PROFIT
QUALITY**



Further information cheerfully given by the

**NYAL COMPANY,
LIMITED**

SLOUGH, BUCKS.

Bottles & Glassware

of every description

Wholesale Only

EXTENSIVE & WELL-ORGANISED WORKS enable us to quote competitive prices and give prompt deliveries.

We invite enquiries for bottles of every description—hand or machine made.

Immediate delivery from stock of all kinds of

**DISPENSING
EMULSION
EMBROGATION
FEEDING BOTTLES**

&c., &c.

If well-made bottles of perfect finish interest you, ASK US TO QUOTE.

BUY BRITISH BOTTLES!

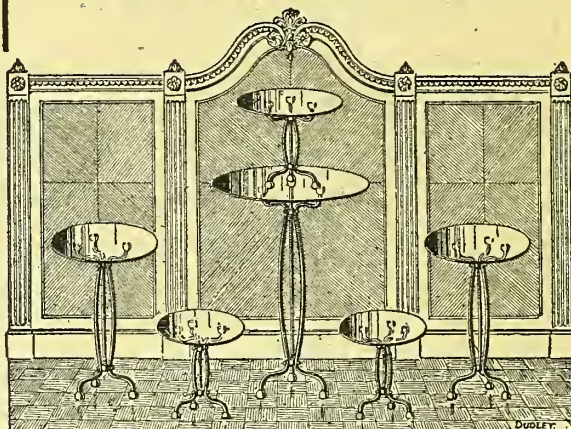
Lax & Shaw

(Regd. Office) **ALBERT GLASS WORKS LIMITED**

HUNSLET, LEEDS

Tel. Add.: Feeders Phone London.
Telephone Nos.: 27047, 23080 Leeds.

A Charming Display Set for a Chemist's Window



THE "REGENT" DISPLAY SET.

No. C.D. 2426, consisting of Six Medium Weight Brown Bronze Tripods—one 9" high, two 12" high, two 18" high, and one 24" high. Six $\frac{1}{2}$ " glass ovals—one 24" x 18", two 18" x 12", and three 12" x 9".

This complete and delightful set

£3 : 16 : 6

List No. C.D. 970 of Fittings sent free on request.

DUDLEY & CO., LTD.

558/576 HOLLOWAY ROAD, LONDON, N.7,
and at 65 and 66 FORE STREET, E.C.

STOPPERS



200 Varieties
Any Colour.

A suitable Composition Stopper will enhance the selling value of your package. Let us fit your Bottles and quote you.



T. WEBSTER & Co.

Telephone:
Mountview 0952

Diamine House, Middle Lane, Hornsey, LONDON, N.8

WAGNER'S DRY BOTTLE CAPS
BEST IN QUALITY & APPEARANCE

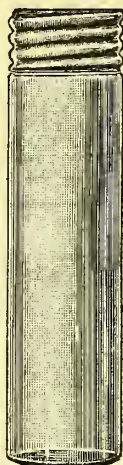
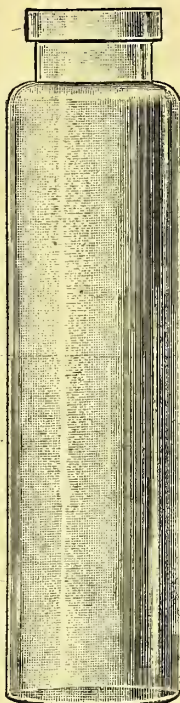


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33, Brooke St., London, E.C.1.

Tel. No. Holborn 5090

DOUBLE VV BRAND

VIALS*British made on British Machines.
NOT MOULDED.
Accurately made with Flat Bottoms.**Enquiries Invited.***GLASS PRODUCTS LTD.**125 High Road, E. Finchley,
London, N.2.

Tel. No.: Finchley 3244.

VISKAP**BOTTLE
CAPS***The*
**ORIGINAL-BEST
and
ONLY BRITISH MADE.**SELF-FIXING, HERMETIC,
TRANSPARENT, OPAQUE, COLOURED
IMMEDIATE DELIVERY

FROM THE MANUFACTURERS:

**VISCOSE DEV. CO. LTD. BROMLEY
KENT.****FOR LABEL AND
GENERAL PRINTING**

Apply to

ROBERTS & NEWTONNote NewAddress:**DOMINION HOUSE,
BARTHOLOMEW CLOSE,
LONDON, E.C.1.**

Telephone: City 1631.

ESTABD. 1889

BEATSON, CLARK & CO.

LTD.

**Chemical and Medical Glass Manufacturers
ROTHERHAM, YORKS.**

Telegrams

"BEATSON, ROTHERHAM."

**SHOP ROUNDS. OIL ROUNDS.
POISONS. SYRUPS & ETHERS.**

WITH AND WITHOUT RECESS LABELS.

ESTABLISHED 1751.

Dont buy "tips"-buy Tippers

COWS RELIEF

Expels Terror of Caked Bag
CURES SORE TEATS
Saves the Udder

CUSTOMERS SAY: "A BLESSING IN THE HOUSEHOLD AND IN THE STALL."
"VERY GOOD FOR HARD BAGS."
"CURED A BAD CASE OF GARGET."
"COWS RELIEF IS VERY RELIABLE."
In tins. 14/-, 21/-, & 45/- Specimen tin, 8/-
B. C. TIPPER & SON, LTD., THE VETERINARY CHEMICAL WORKS, BIRMINGHAM.

NICOTINE INSECTICIDES

Are by far the most efficient and economical for destroying sucking Insects in Greenhouse, Garden, Orchard & Field

PACKED IN
PURE NICOTINE, SOAP, POWDER,
FUMIGATING & VAPORISING forms

Full particulars from:—

J. D. CAMPBELL Nicotine Manufacturer,
17 Lund St., Cornbrook, Manchester



*A well advertised line
showing a PROFIT of 38%*

Bob Martin's Dog Remedies are widely advertised, and a wealth of attractive sales aids is at your disposal. Please let us know your requirements.

BOB MARTIN LTD., SOUTHPORT, LANCs.

BOB MARTIN'S
TASTELESS
CONDITION POWDERS



YOU MAY WANT TO

Buy a Business, Sell a Business, Secure an Agency, Engage an Assistant, Procure a Situation, or Sell Odd Lots of Chemists' Requisites

If so, you can do it quickly and satisfactorily by an advertisement in

THE CHEMIST & DRUGGIST SUPPLEMENT

This is the Tariff:

Businesses Wanted and for Disposal, Premises to Let, Goods for Sale, and Agencies; 6/- for 50 words; every additional 10 words or less, 6d.

SITUATIONS OPEN: 6/- for 40 words; every additional 10 words or less, 6d.

SITUATIONS WANTED: 2/- for 18 words; every additional 10 words or less, 6d.

Legal Notices, Tenders, Auctions, and all specially spaced announcements, 1/3 per nonpareil line (12 lines=1 inch single column).

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EXCHANGE COLUMN (for Retailers, etc.). Twopence per word, minimum 2/-.

BOX NUMBER.

In each case replies may be addressed to a registered number or nom-de-plume, c/o this Office, at a charge of 1/- extra for each advertisement.

Address all communications to
THE PUBLISHER, THE CHEMIST AND DRUGGIST, 42 Cannon Street, London, E.C. 4

Telegrams: "Chemicus, Cannon, London" (2 words)
Telephone: Central 3617 (3 lines)

HARVEY'S

Watts' Embrocation, or Curb Bottle.
Aconite Powders.
Worm & Condition Powders.
Watts' Red Lotion.
Hair-Restoring Ointment.
Edos, or Tasteless Purging Powder.

HARVEY'S**Great**

Protected Prices
(P. A. T. A.)

Remedies for the Horse**HARVEY'S**

Koppos Powder.
Parasiticide.
Thrush Specific.
Hoof Ointment.
Hair Restorer (Human).

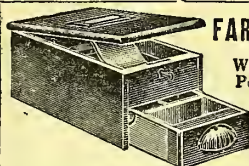
Of all the leading Druggists' Sundries Houses
HARVEY & COMPANY, Ltd., Dublin

**BATTLE'S
PROFITABLE LINES**

specially packed for the

Chemists' Trade**POULTRY POWDER & PILLS****PIG POWDERS****DOG PILLS AND SOAP****DRENCHES** of all kinds for
CATTLE, HORSES AND SHEEP**EMBROCATION** (Household,
Footballers, Vety.)**LYSOL. DISINFECTANTS****WEED KILLERS. SHEEP DIPS**

Write to—

Battle, Hayward & Bower, Lincoln**FARLEY'S No. 5 CASH TILL 30/-**

Well-seasoned American Hardwood,
Polished Oak or Mahogany, any
colour. 18" x 9" x 7"
Till Roll 3 1/2"

**FARLEY'S, 227 Old Street,
LONDON, E.C.1**

Sherleys**LACTOL &c.**

(P.A.T.A.)

These preparations command a ready sale and are by far the largest advertised of any on the market. They are protected at prices that leave a good margin of profit for the retailer, and the terms on which they are supplied preclude any possibility of loss. We have an excellent range of literature and show cards, and do all in our power to assist chemists by referring mail customers to them.

WRITE FOR PRICE LIST AND TERMS.

**A. F. SHERLEY & CO., LTD., 18 MARSHALSEA ROAD,
LONDON, S.E.1.**

Tel. No. : Hop 1897.

Telegrams : "Sherleydom, London."

**Continuous and Steadily Advertised Goods
FOR DESTROYING RATS AND MICE****DANYSZ VIRUS**

Retail Price (protected).	Net Wholesale Prices
Virus for Rats and Mice, single tube, 2/-	15/- per doz.
3 tubes, 5/-	
Virus for Mice only - single tube, 1/6	9/- " "
3 tubes, 3/-	
Date-expired tubes returned to us postage paid will be exchanged free of charge.	

Danysz Virus in Liquid Form

Retail Price.	Wholesale Price
Quart Bottles 6/- each	4/6 each
Pint " 4/6 "	3/9 "

**HALLER'S EXTRACT OF SQUILL
and DANZO RAT KILLER**

Discount off Retail Prices 25% Monthly Account, or 33 1/3% cash with order.

	Retail	Monthly a/c	Cash with order
1/2 gall. tins	10/-	7/6	6/8
1 " "	18/-	13/6	12/-
5 " "	80/-	60/-	53/4

DANZO BEETLE POWDER

For destroying Blackbeetles, Cockroaches, Crickets, &c.

Retail Prices (protected).	Wholesale prices per doz.
In tins 3d.	In boxes of 2 doz. 2/1
6d.	3/8
1/-	1 " 7/3
2/6	1 " 18/-

Danzo Beetle Powder will not deteriorate by keeping.
CARRIAGE PAID ON ALL ORDERS.

To be obtained from
HALLER LABORATORIES, LTD.
325 Borough High Street, LONDON, S.E.1

Telegrams : "Virudana, Sedist, London."

Telephone : Hop 2717.



FAIRY DYES

Mean Greater Turnover for You—and Absolute Satisfaction for Your Customers.

THERE is no more attractive line on the market to-day—there is no better seller—and no article has made larger strides in popular favour.

FAIRY DYES

are now sold in glass tubes, encased in smart, clean-looking "safety-first" cartons. They are retailed at 2d. each, made in 25 popular shades and colours, and are extensively advertised in the right publications.

You can rely upon Fairy Dyes—for prompt delivery in any quantities—for fresh stocks—for quick, easy-to-handle, clean turnover, and as tried favourites your customers are always satisfied. See that you are supplied without delay.

For Trade Terms and particulars write to

FAIRY DYES, LTD.,

61 WELL ROAD
GLASGOW.

London Depot - - - - 292 UPPER STREET, ISLINGTON, N.1.

English
Filter

POSTLIP
Papers

SQUARES
CIRCLES
FOLDED
ROLLS

WHITE
GREY
PLAIN
ANTIQUE
EMBOSSED
CRINKLED

SAMPLES
FREE



Evans, Adlard & Co. Ltd.

Postlip Mills, Winchcombe, Cheltenham.

Merit



Merit is a quality that compels and retains goodwill, and this is made evident by the continued patronage of your customers.

TOWN TALK LIQUID SILVER POLISH & SILVER PLATE CLOTH

are reputed amongst craftsmen in the jeweller's and silversmith's trades as being unexcelled for cleaning and polishing silver and E.P. Ware. For over 20 years they have used and recommended "Town Talk," whilst housewives the country over acclaim it the easiest, cleanest, most gratifying and least injurious polisher obtainable.

We want your co-operation in selling "Town Talk." It is widely advertised in the National Press where housewives are told they can buy it from Chemists.

Do you sell "Town Talk"?

It enjoys a brisk sale and yields a very generous profit.

ORDER FROM

JAMES WOOLLEY, SONS & Co., Ltd.,
Manchester.

AYRTON, SAUNDERS & Co., Ltd., Liverpool.

Town Talk Polish Co.,
Whitby St., Bradford Road, Manchester.



PHOSFERINE

New Window Display Conditions

Monthly Account.Carriage Paid.

For a small Central Window Display of not less than 14 days and an order for £5 worth of Phosferine we allow a bonus of 10/6, on a £2 10 0 order 5/3.

This shows a net profit on the transaction to the Chemist of 35%, besides attracting the passer-by to the window, and considerably augmenting sales generally.

Should a £5 or £2 10 0 parcel not be required, any smaller quantity will be forwarded carriage paid, and can, if desired, be regarded as part of the £5 or £2 10 0 order. On completion of the order and a notification that the display is in progress the bonus will be allowed.

The above conditions apply only to the United Kingdom.

EXAMPLE.

		COST	SELLS FOR
3½ dozen 1/3 size at 12/- net	....	£2 2 0	£2 12 6
2 „ 3/- „ at 30/- „	....	3 0 0	3 12 0
		5 2 0	
Less 10/6 for Window Show	....	10 6	
		£4 11 6	£6 4 6

Showing a Net Profit of £1 13 0 on an outlay of £4 11 6.

Window Display Material Free and Carriage Paid.

WHOLESALE PRICES OF PHOSFERINE.Carriage Paid.Monthly Account.

1/3 size	....	12/- per doz. net.
3/- „	....	30/- „ „
5/- „	....	48/6 „ „
12/- „	....	114/- „ „

PROTECTED PRICES.

Phosferine and all of our Proprietary Medicines are supplied on the condition that they are not retailed in the United Kingdom under the following prices—viz., 1/3, 3/-, 5/-, and 12/-.

ASHTON & PARSONS, Ltd., Ludgate Hill, LONDON, E.C.4.

Telephone No.: CITY 8733. Telegraphic Address: "PHOSFERINE, CENT, LONDON."

IMPORTANT.—Every care is used in corking and packing Phosferine, but occasionally a leaky bottle will pass undetected. Any leaky or faulty bottle should be returned to Ashton & Parsons, Ltd., Ludgate Hill, London, E.C.4, when a fresh supply will be sent and postage refunded.

Trade follows the Ad.

The absolute necessity for increasing British trade—Home and Export—is daily being emphasised by statesmen, business men and bankers.

It is nowadays generally recognised that advertising in a reputable trade journal, with a genuine appeal to actual buyers like

THE CHEMIST & DRUGGIST

is the most EFFECTIVE and LEAST EXPENSIVE way of selling goods. In the case of THE CHEMIST AND DRUGGIST the appeal is universal. Besides having as regular subscribers all the worth-while firms—manufacturing, wholesale, export and retail—in the United Kingdom, the subscription list includes the names of thousands of responsible firms buying and selling drugs, chemicals, perfumery, druggists' sundries, and allied products in the following countries overseas:

BRITISH EMPIRE:

Australia, British Columbia, British Guiana, British West Indies, Burma, Canada, Ceylon, Cyprus, Fiji Islands, Gibraltar, Gold Coast, Hong Kong, India, Jamaica, Kenya Colony, Malay States, Malta, Newfoundland, New Zealand, Nigeria, North Borneo, Rhodesia, St. Helena, Sierra Leone, Trinidad, Uganda, Union of South Africa and Zanzibar.

EUROPEAN CONTINENT:

Austria, Belgium, Bulgaria, Czecho-Slovakia, Denmark, Esthonia, Finland, France, Germany, Greece, Holland, Hungary, Italy, Latvia, Norway, Poland, Portugal, Roumania, Russia, Serbia, Sicily, Spain, Sweden, Switzerland, Turkey and Yugo-Slavia.

CENTRAL AMERICA and SOUTH AMERICA:

Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Guatemala, Panama, Peru and Salvador.

AFRICA:

Canary Islands, Congo (Belge), Egypt, Portuguese West Africa, South West Africa Protectorate, and Sudan.

NEAR EAST and FAR EAST:

Arabia, Asia Minor, China, Dutch East Indies, Japan, Manchuria, Mesopotamia, Palestine, Philippine Islands, Siam and Syria.

UNITED STATES OF AMERICA.

MEXICO.

Thus wherever the British Flag goes there also is THE CHEMIST & DRUGGIST, and the point to bear in mind is that it is sent regularly at the request of eager buyers of Drug-trade commodities who prepay 20/- to have it delivered to them weekly for twelve months. The firm with Drug-trade merchandise to dispose of, therefore, which is not advertising in THE CHEMIST & DRUGGIST is losing golden opportunities.

All particulars regarding available space, special positions, coloured insets, &c., from:

THE PUBLISHER

THE CHEMIST & DRUGGIST
42 CANNON STREET LONDON, E.C.4

49 County Buildings, Cannon Street,
MANCHESTER.

BRANCH OFFICES:
19 Waterloo Street,
GLASGOW.

54 Foster's Buildings, High Street,
SHEFFIELD.

And MELBOURNE and SYDNEY, AUSTRALIA.

WHIFFEN & SONS LTD

INCORPORATING GEORGE ATKINSON & CO.

(ESTABLISHED 1654).

British Manufactured

Iodides,

Iodoform,

Iodine Resub.



We are
Exhibiting
at the
**BRITISH
INDUSTRIES
FAIR
1928**



Drug grinding a speciality



GENERAL OFFICES : - CARNWATH ROAD,
FULHAM, LONDON, S.W

FACTORIES - - BATTERSEA AND FULHAM.

TELEGRAMS: "WHIFFEN, LONDON."
TELEPHONE: PUTNEY 3993 (3 lines).

MORUETTE COD LIVER OIL TABLETS

THE SUCCESSFUL CONCENTRATION

By highly scientific work we have equalised one tablet to one teaspoonful of the Oil. Beautifully chocolate coated, the most delicate stomach digests them. All the valuable nourishing and strengthening qualities of the Oil are retained, whilst the unpleasant and nauseating greasy element is eliminated.



Boxes of 24, per **7/-** doz. Boxes of 72, per **15/-** doz.

RETAIL - - **1/-** and **2/6**

P.A.T.A.

BONUS of 1 dozen 1/- size with every 6 dozen.

You can recommend these with confidence in all cases of malnutrition and wasting, whether in adults or children. A course of these tablets enables delicate and "chesty" folk to build a sure barrier against colds, chills, etc. Their efficacy in this direction has been repeatedly brought to our notice. *New show material available.*

ARTHUR H. COX & CO., LTD.

Manufacturing Chemists

BRIGHTON

Printed for the Proprietors by THE AVENUE PRESS (L. UPPON & SON, LTD.), 55 to 57, Drury Lane, W.C.2, and Published by the Proprietors, Morgan Brothers (Publishers), Ltd., at 42 Cannon Street, in the City of London, December 31, 1927.

